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THE EDISON MONTHLY

JUNE

1909

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The
New York Edison
Company

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BRANCH OFFICES	*Telephone*
115 Delancey St	Orchard 1960
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27 East 125th St	Harlem 4020
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THE EDISON MONTHLY

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1911 L

VOLUME II NUMBER 1

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PUBLIC
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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
GENERAL OFFICES:
55 DUANE STREET, NEW YORK CITY

President
ANTHONY N BRADY, 54 Wall Street
Vice-President and Treasurer
NICHOLAS F BRADY, 55 Duane Street
Secretary
LEWIS B GAWTRY, 4 Irving Place

The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

The illustrated article on the Huyler factory, appearing in our issue of February, attracted a great deal of attention. Several requests have been received for additional copies. Still having a few, we shall be glad to supply them on request, while they last, to anyone who may be interested in this subject.

* * *

All electric current consumed in this establishment is supplied by The New York Edison Company, and a great deal of satisfaction with the service has been recently expressed. It is hoped that the time will not be far distant when electric, as distinct from steam heat, now available for almost every known heat application, can be exclusively employed in a great industry of this character. Here is a chance for some inventive mind.

* * *

The final details for the coming Electrical Show, to be held in Madison Square Garden next October, are practically completed. The decorations and the lighting effects will surpass anything ever seen in New York before, and, in fact, the exhibition as a whole will be unprecedented.

There will be one of the most complete and diversified industrial displays ever brought together. Electrically driven machinery representing nearly every industry will be in practical operation. Electricity in the household, on the farm, in the store, office and public building will also receive its share of attention.

The greater portion of the space has already been sold, and there is every indication that the 1909 Electrical Show will be the largest and most successful ever held.

* * *

There is no problem of more vital interest to the small manufacturer, repair-shop man or user of light machinery than that of obtaining a cheap, reliable, simple and continuous source of energy. This question is often the dominating factor in determining the location of a shop or manufactory. Nearly everything else is subservient to it. There are throughout this country thousands of mechanics and manufacturers using light machinery who are quartered in out-of-the-way, low-studded, badly ventilated and badly lighted shops for the reason that it is only in such locations that they can find shafting to which they can attach their machines and from which they may obtain the necessary energy to operate them at a reasonable cost.

◆

Aside from the prejudicial effects to health and eyesight arising from working in such unhygienic surroundings, they are a positive and serious detriment to a man's business success. People do not like to enter gloomy, out-of-the-way, ill-ventilated and dirty shops to place their orders or look for such articles as they may be in search of. A pleasant, well-lighted, well-ventilated and easily accessible store or factory is an absolute necessity to any man desirous of making the most of his business. Even if a room be clean, light and well-ventilated at the start, it soon becomes gloomy and dirty if energy is supplied to its occupant from the time-honored line shaft, with its attendant heavy belts, frictional electricity, constant dust and dropping oil.

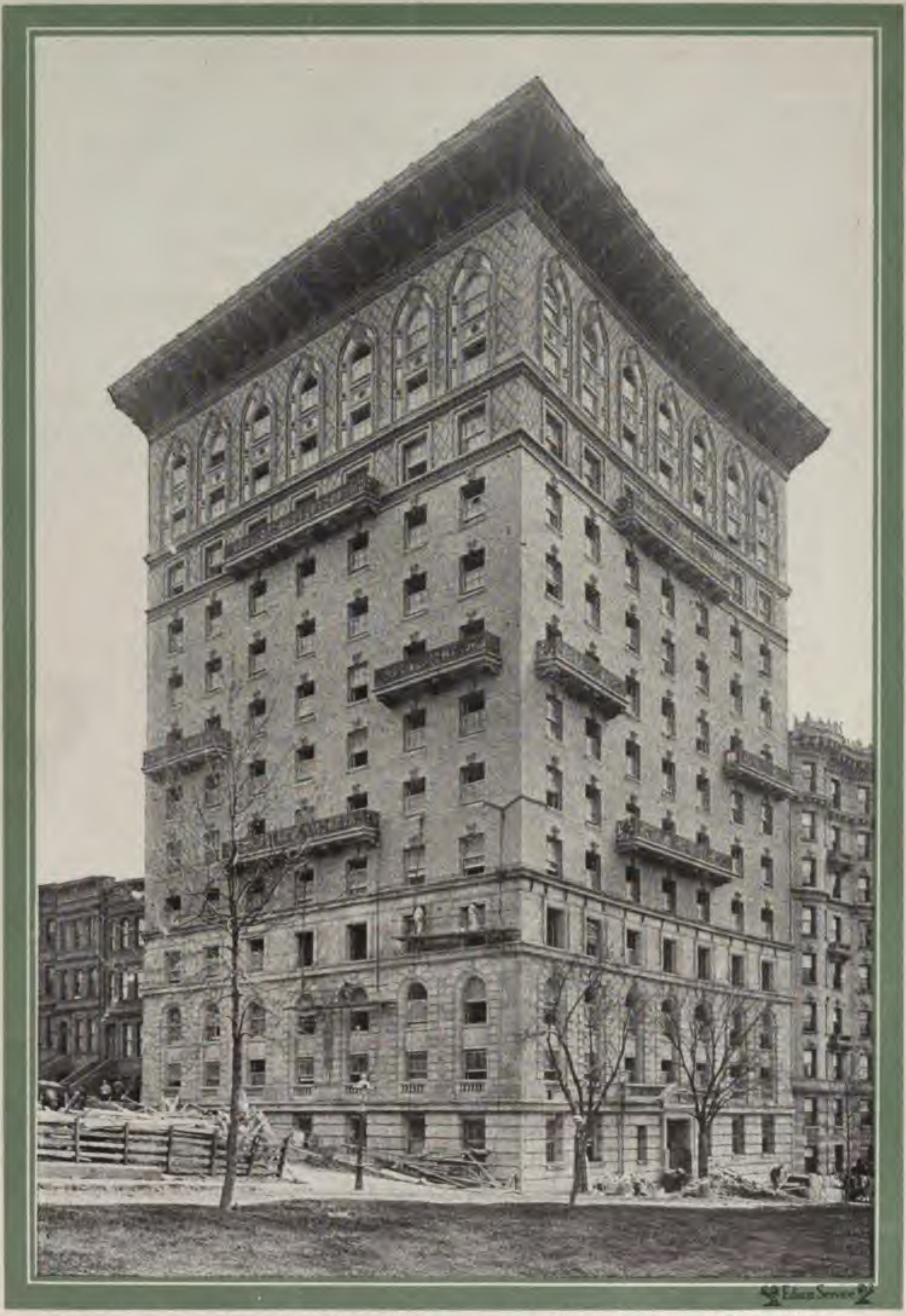
◆

With the advent of the electric motor the necessity for putting up with these conditions is largely eliminated. In all of our principal cities and towns there are electric stations from which a supply of electric energy may be readily obtained for operating motors. These motors may be, and often are, directly connected to the machines, thereby doing away with belting. Where this is impracticable, the shafting and connecting belts may be of the lightest character, and then only of the size and number absolutely necessary for local requirements. They may be chosen without any regard to transmitting energy from room to room or over long distances.

◆

To ventilate a public building without giving rise to complaints from the numerous persons who are sensitive to draughts has not in the past been an easy task. But the electric fan offers a simple solution of all difficulties in the way of ventilation; it can be fixed in any out-of-the-way position and controlled from any convenient point; it is silent and its simplicity of construction is such that it seldom gets out of order; moreover, it does its work at an extremely low cost and can be switched on or off with the greatest ease. The operation is so simple that a child can manage it.

Exhaust fans are now extensively used in factories, public buildings and offices, and also in hotels, restaurants and saloons; in fact, by all who wish to attract customers. Proprietors of such establishments realize that pure air is desirable for the comfort of patrons as well as for their health and that of employees.



New apartment building, 318-320 West 98th Street, corner of Riverside Drive. This building was erected at a cost of $500,000 and contains all modern improvements. Edison Service is used exclusively for lighting and power. The electrical installation includes 2,700 incandescent lamps and nearly 160 horse-power in motors. The owners are The Century Holding Company, Lee & Fleischmann, 141 Broadway

Electricity in the White House

IN a recent number of the ***Sunday World*** an article on the home life of President Taft and family contained the following extract:

"When Mrs Taft went into the White House to live, one of her first duties was to make a thorough inspection of every corner in the big mansion, in order that she might familiarize herself with the system which then prevailed and with the available mechanical equipment for running the house. Almost the first thing her ready eye caught sight of was an old buffer for cleaning silver, which has been in the possession of the White House more years than any one is able to tell, and which had been packed away in a storeroom out of use. The buffer, which is operated by electric power, was brought out of its dark corner and installed in the pantry just off the state dining room. Family and state silver is given even greater attention than ever before. Two men now clean the entire lot in a few hours, where hitherto it has required as many days to do the work by hand. In fact, much of the silver, particularly the largest pieces, was either sent away to be done over or cleaners were supplied by local jewelry firms. To-day it is done right there in the pantry at the turn of a switch."

Large building at 636 Fifth Avenue which has adopted Edison Service throughout for 3,300 incandescent lamps and 110 horsepower in motors. The owner is Mr Thos R A Hall

---

The hot season is fast approaching. Electric cooking appliances do not heat a room. Electric **fans** furnish cooling breezes. Be **comfortable** this summer by using **Edison** Service.

Interior view of the display room at the 2nd district office of The New York Edison Company, 124 West Forty-second Street

An interesting exhibit of heating devices and Sibley & Pitman portable lamps, at the Forty-second Street display room of The New York Edison Company

Portable Electric Fountains

THE portable electric fountain shown in the illustration, with other electrical decorations, combines an artistic blending of colored glass, flowing water and electric light, being well adapted to use in a reception room, library, hall or conservatory.

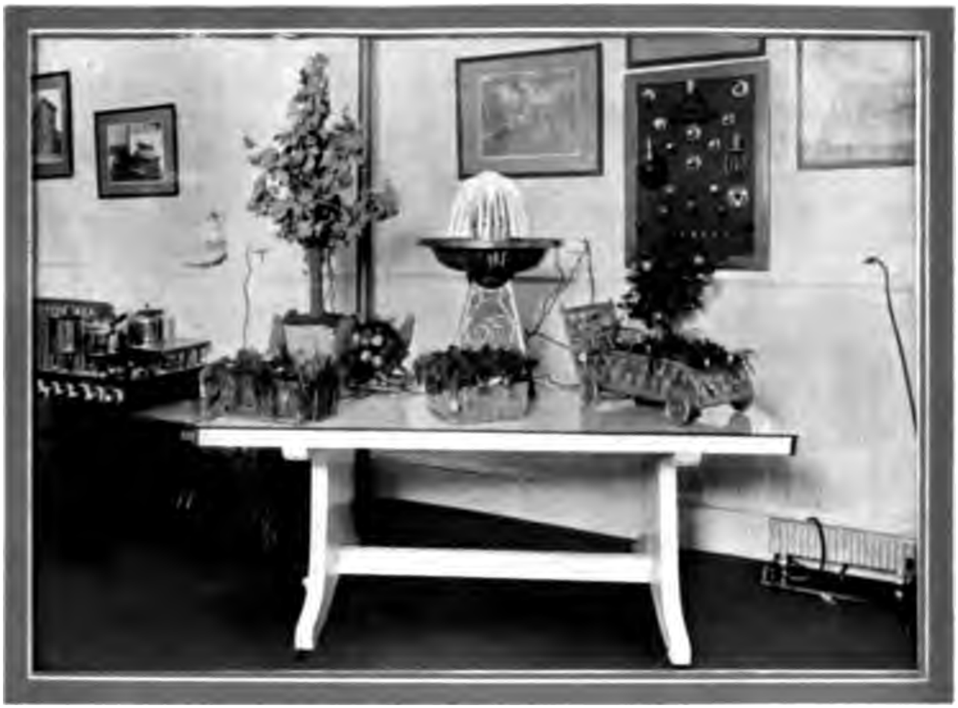
By evaporation the fountain furnishes the necessary moisture in the atmosphere, gathers the dust floating in the air and deposits it in a strainer which can readily be cleaned

No plumbing is necessary, as the water is used continuously, and only the loss caused by evaporation has to be replenished. The mechanism consists of a specially constructed motor attached to a centrifugal pump placed in the interior of a metal basin. The pump is supplied with water directly from the basin and sends it through pipes to nozzles that direct a number of small streams over the dome. The water then drops down into the basin, to be used over again by the pump.

These fountains are manufactured by The New York Electric Fountain Company, 45 Liberty Street.

———— ————

Use Edison Service.



Electric Fountain and Decorative Lighting Appliances Forty-second Street display room of The New York Edison Company

Electric Pyrography

PYROGRAPHY is a very popular occupation even when gasoline with its fumes has to be used to heat the stylus. The work will become still more fascinating if the electric stylus is used, as it can be kept at a uniform heat so that all the attention of the artist can be given to the drawing.

Tungsten Lamps for Automobiles

THE new tungsten lamp, the economical features of which have revolutionized electric lighting, has been successfully applied to automobiles to take the place of the oil signal lamps or for instrument illumination.

The tungsten lamps are made in miniature sizes, which can be run by low voltages from the ignition battery at such a high efficiency as to necessitate only one-third of the battery capacity required for carbon lamps.

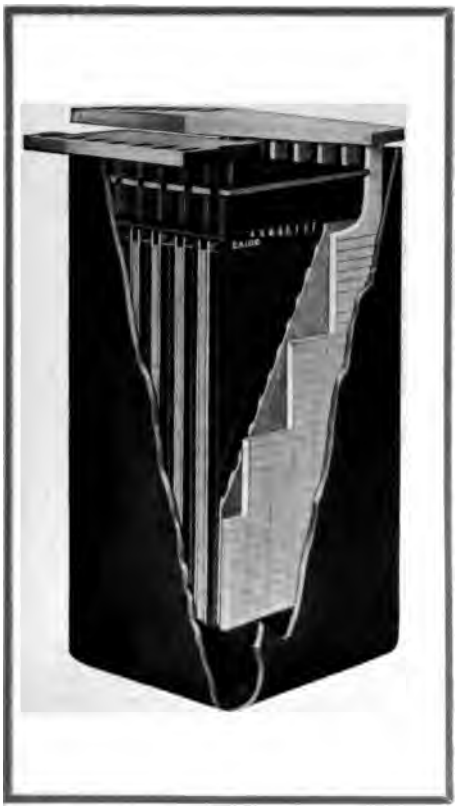
It is very probable that electric lights will soon take the place of

Baker Electric Coupe

the acetylene headlights on automobiles used for city purposes. There is even some talk of passing ordinances in several cities against the use of these glaring headlights, which blind pedestrians and other drivers. Oil headlights have been tried, but they give too little light and the experiments recently conducted with the new tungsten electric lights warrant the statement that they make better headlights than gas for city machines.—*The Electric Vehicle and Central Station.*

An electric fan on the buffet in the dining room adds greatly to the enjoyment of a meal.

Babcock Electric Runabout. Good for 100 miles on one battery charge, and capable of attaining a speed of 38 miles an hour



The Electric Storage Battery Company's Type "M V" 13 Cell

Exide Batteries

THE earliest commercial application of the storage battery for automobile propulsion was made in 1899. The Electric Storage Battery Company early began the development of a battery having a large capacity with minimum weight. This battery has become known as the "Exide," and is a development of the Bradbury-Stone type of grid, which in early forms resembled a checkerboard, the white squares representing one face of the plate and the black squares the other face. The two faces were united by ribs, or strips, running lengthwise, so that when the plate was pasted the paste was held in the grid in the form of a pencil between the vertical ribs, and locked in place by the checkerboard squares on each face. This grid was heavy, and a large portion of the surfaces of the active material was covered over. The next improvement was lightening the grid and exposing more of the surface of the active material. This was accomplished by reducing the checkerboard squares in one dimension, bringing into prominence the longitudinal ribs and making the pencil of active material more pronounced.

The next development was in bringing the cross-bars on each side of the plate into alignment with each other while still maintaining the staggered relation with respect to the bars on the opposite face of the plate. The section of the bars has been still further reduced until the present type of plates were adopted.

The Electric Storage Battery Company's Single Tray of Five Cells

Westinghouse Mercury Rectifiers

THE Westinghouse Electric & Manufacturing Company have devised several types of mercury rectifier battery-charging outfits to fulfill various conditions of the service. Two of these, which are especially designed for use in charging the batteries of the electric automobile, are noted below.

Westinghouse Type A Mercury Rectifier

The charging of storage batteries for the electric automobile is one of the handicaps with which this desirable type of vehicle has suffered. It has required more or less expert attention, such as the individual owner is rarely prepared to give, which usually means the return of the vehicle to the garage. The type "A" mercury rectifier outfit recently placed on the market is designed to overcome the charging difficulties commonly met with, as it is an outfit which can be readily adjusted for charging any particular battery and which is entirely automatic in its operation. With this new mercury rectifier outfit it is only necessary to set the regulating dial pointers according to the table in the instruction card on the outfit. After this has once been done no readjustment is necessary during the progress of the charge or from charge to charge. In regular charging it is simply necessary that the rectifier outfit be cut into the vehicle battery and the primary current supply

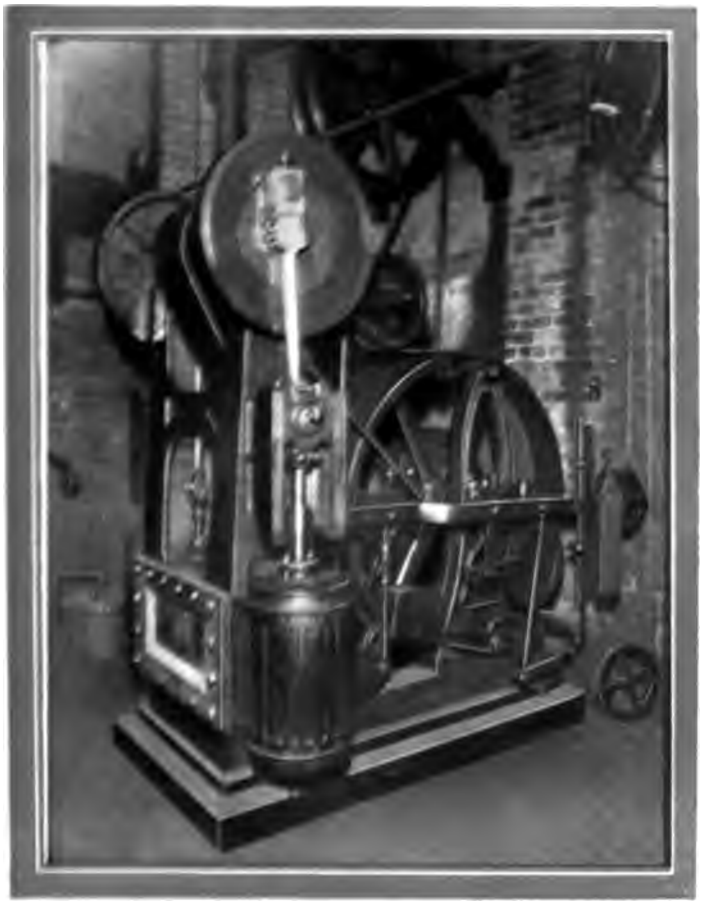
General Vehicle Company's 3½ ton Electric Truck used by Acker, Merrall & Condit Company

switch closed. The mercury rectifier is immediately started, automatically, and proceeds to supply direct current, charging the battery.

The type "A" rectifier outfit is not only self-starting when primary switch is closed, but if at any time the current is interrupted during the charge it automatically stops itself until the battery reaches a point where it is cut out by the completion of the battery charge.

This permits the individual owner to run the vehicle into his private garage connect it up with the type "A" Westinghouse mercury rectifier, close the primary switch and go to bed, knowing that in the morning he will find his automobile with the battery fully charged, all ready for operation, he merely having to open the primary switch and disconnect the battery from the rectifier outfit.

When there is no danger of momentary interruption in the primary circuit, the type "A" rectifier outfit can be furnished without the automatic starting features, if so desired. This outfit has the other characteristics of gradually cutting down the current as the voltage of the battery cells rise, and cutting out automatically when the charge is completed, and it differs from the type "A" automatic outfit only in requiring the bulb of the rectifier to be tilted by hand in order to start it.



Old Steam Elevator Equipment in Mayo & Campbell's Building, 387 Greenwich Street

Electric Elevators

IN the building of Mayo & Campbell, 387 Greenwich Street, two steam-driven freight elevators have recently been remodeled for electric motor drive by The Maintenance Company.

The motors are of fifteen horsepower capacity each and are direct connected to the elevator mechanism.

The illustrations show the great contrast in the relative space occupied by the engine and motor outfit, which is giving more satisfactory results than was anticipated.

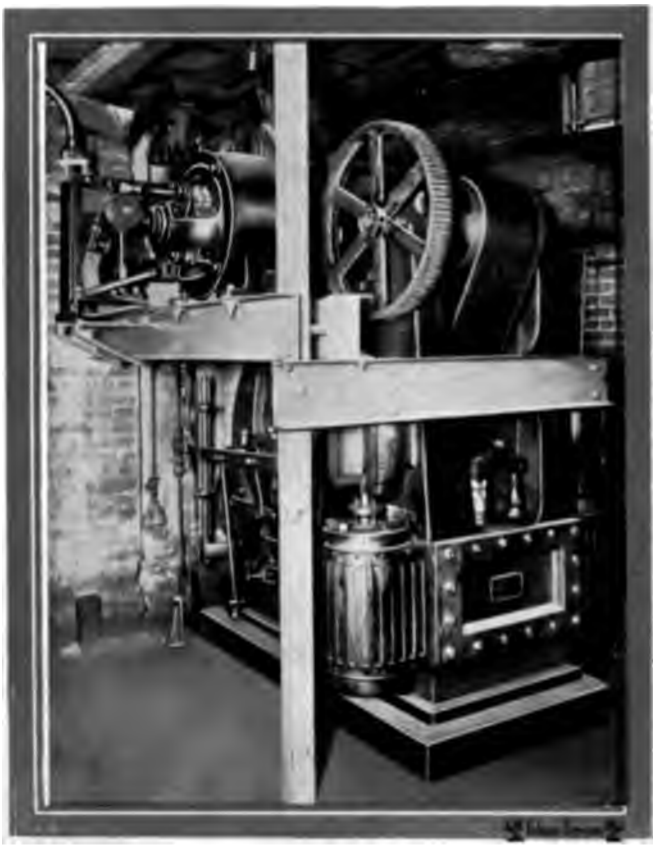
City Planning and Municipal Art Exhibition

DURING the first two weeks of May the armory of the Twenty-second Regiment, N. G. N. Y., Broadway, Sixty-seventh and Sixty-eighth Streets, was the scene of a very interesting exhibition which showed: "What has been achieved in municipal art in New York City and other American cities;" "City planning in some American cities;" "City planning in some foreign cities;" "Why New York should have a comprehensive city plan" and "Why every city should have a comprehensive plan."

The Municipal Art Society of New York made a very interesting exhibit, including about ninety fine enlargements loaned by The New York Edison Company, showing the improvements in methods of street lighting and designs of fixtures. There was a very large attendance and the exhibition was highly satisfactory in every respect.

Electric motors for household use save much time, labor and money. Call at our Forty-second Street office and see the large number of applications.

Electric light and electric heat do much to facilitate the work of the modern house, but there are many household duties which these cannot lighten, and here the need is supplied by the electric motor.



The motor equipment that displaced the steam engine is shown on the bracket at the upper left of photograph. It is not practicable to show the discarded steam plant, with all its attendant disadvantages

Lighting of the Waring Hat Factory

Tungsten Lighting in the Waring Hat Factory, Yonkers

TUNGSTEN lamps have been installed in the trimming room of the Waring Hat Manufacturing Company, Yonkers, for furnishing light to about two hundred employees. The equipment of eighty 25-watt, 20-candle-power tungsten units, each equipped with a Frink mirror. The installation is giving entire satisfaction and is heartily endorsed by the management and employees alike.

Use electric heaters cool days.

Attractive Tungsten Lighting in the Strobel & Wilken Company's Store, 591 Broadway

New Use for Tungsten Lamps

A NEW and interesting feature of the tungsten lamp is its use in photography. One of the leading photographers of the city employs a 100-watt clear tungsten lamp exclusively for the purpose of printing pictures. The quality of the light so closely resembles sunlight that it makes it possible to print at any time and in any kind of weather.

A print can be made from a fairly good negative in about two seconds, or about as long as it takes to place the frame under the lamp and withdraw it. With this method about one-third to one-half the time is required in comparison with the old method of printing by other artificial illuminants. In addition to this, the efficiency of the lamp brings the operating cost down to a minimum. The installation is in the studio of B M Levoy, 24 East Twenty-third Street.

Cooper Sketches

THE Cooper sketches, which appear over the table of contents of THE MONTHLY, attract a great deal of attention and favorable comment. It may not be known that these sketches are cut out of a blackened card with the sharp point of an ordinary pocket-knife. The blackened surface is simply cut away, leaving the outline as it appears in the picture.

A complete set of the 1909 series will be mailed on request to any reader of THE MONTHLY.

View in Another Department of the Strobel & Wilken Company's Store

Electric Vehicles Adopted by the New York Post Office

Large Electric Sign at 11th Avenue and 22nd Street

FOUR electric vehicles, made by the General Vehicle Company, were recently placed in the service of the New York Post Office.

These four machines are handling mail between College Station, 307 West 140th Street, Station M, Amsterdam Avenue, 157th and 158th Streets, and Washington Bridge Station, Amsterdam Avenue, 180th Street, making half hourly trips. The Mail Department plans to extend this service to Station J, at Eighth Avenue and 124th Street, very soon.

The present schedule calls for thirty four round trips per day, twelve round trips on Sundays, and fourteen round trips on holidays. There are three machines in constant operation, with a fourth one for reserve.

The machines themselves are of the straight electric type, operated by storage batteries, and are the latest design of the General Vehicle Company, who are the pioneers in the electric commercial field. Each machine has a carrying capacity of a thousand pounds, and will operate forty miles on one charge of battery at a speed of eleven miles per hour.

The General Vehicle Company, at its factory in Long Island City, are manufacturing electric commercial vehicles for service of all kinds. The sizes range from 350-pound light delivery runabouts, up to and including five-ton trucks.

Edison Service in the Bronx

St John's College, Fordham, where a private plant has recently been abandoned
Edison Service now supplies about 1,500 incandescent lamps

Row of Apartment Buildings, erected by the Belmar Investing Company,
in 181st Street, between Aqueduct and Grand Avenues

Views of Garden Fete held in rear of Lenox Library on Madison Avenue the third week in May

Hints on the Care of Electric Vehicles

THE only parts of the motor that need attention are the commutator, brushes and bearings. The motor should be inspected at least once a month. The commutator should be examined when the motor is running with the rear wheels of the vehicle jacked up, to detect any sparking which may be due to a dirty or worn commutator, worn bearings, or a broken or loose brush. The commutator and brushes should at all times be kept perfectly clean.

The commutator may be lubricated with a very little vaseline, applied with a clean cloth while the motor is running.

In normal condition the commutator presents a smooth, brownish surface. If blackening appears, it may be due to sparking or wearing. In order to clean a blackened commutator, block the front wheels of the vehicle, and jack up the rear axle so that the wheels will turn freely. Then place the controller lever on the first speed notch, and the rear wheels will revolve slowly. Take a small piece of fine sandpaper and place it firmly against the commutator, until it wears clean and bright. Upon completing this operation be sure that all dust is cleaned from around the commutator. In order to insure cleanliness a piece of felt may be applied to the commutator in the same manner as the sandpaper.

If the commutator flashes it may be due to a broken wire or coil, producing a greenish flame and burning two adjacent bars. This

More than three thousand incandescent lamps were used for decorative and lighting purposes
Supplied exclusively from Edison Service

burning may be stopped by putting a jumper of solder or small wire across the burned bar, connecting the two adjacent bars to each other, until a complete examination can be made and the broken connection permanently repaired.

The brushes should be maintained at a medium tension. Too light a tension will produce sparking, and consequent blackening of the commutator, while too heavy a tension will add to the friction of the motor and cause excessive wear.

When the car has been driven a considerable distance the brushes will naturally wear and should be readjusted occasionally.

If brushes become badly worn, burned, or broken, or make poor contact, replace them with new brushes. Sandpaper to obtain a good contact. The ball bearings on the motor and the roller bearings on the wheels and countershaft should be cleaned in kerosene oil or gasoline and repacked with non-fluid oil once a month.

Once a month take off the roller chains driving the wheels, wash in kerosene oil until clean, then soak in hot tallow or heavy grease.

Chains should show a little slack when running. Too loose or too tight chains may jump off, stretch, wear out or run hard. The motor chain should be lubricated twice weekly with a heavy grease.

The steering gear requires practically no attention beyond the lubrication of the connection joints, in order that it may work smoothly. Care should be taken to see that all bolts and nuts on the steering connections down to the front axle are securely fastened.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Electrically Operated Cash Register. After registering the amount of purchase it is only necessary to push a button and the rest of the operations are performed automatically

[illegible] little required to keep the segments bright and smooth.

Simplex Electrical Heating Company's Plate-Warming Oven

The Convention

As we go to press the Thirty-second Convention of the National Electric Light Association is in session at Atlantic City with an unusually large attendance.

Simplex Electric Iron Stand

Electric Polishing and Buffing Motor Lathes

THIS outfit is intended for hotel and household use and combines an enclosed variable speed motor and spindles for the attachment of buffing and polishing wheels. It is claimed by the manufacturers, The W Green Electric Company, 81 Nassau Street, that an entire buffet of silver can be cleaned equal to new in thirty minutes. The outfits are provided with a speed controller mounted in the motor bases, and are made in sizes from one-eighth to three-quarters horse-power, for direct and alternating current circuits.

Green Electric Polisher and Buffer

Automatic Pacific Iron

THE requirements of the insurance inspectors have made necessary a certain device connected to electric irons which has retarded its use because of extra cost and difficulty experienced in handling.

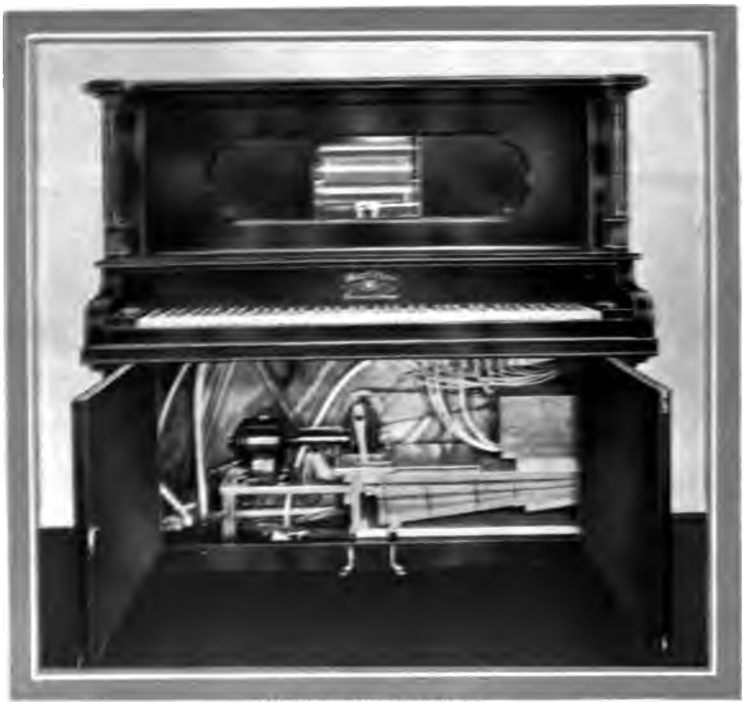
There is an iron now on the market which is absolutely proof against fire and which is simple and durable as one could wish. This iron is equipped with an automatic regulator which disconnects the current when the iron reaches a dangerous temperature. This is accomplished by a spring in the heel of the iron by means of which the attachment plug is forced out.

The "Automatic Iron" is for sale by C D Wood, Jr. of 136 Liberty St, New York City.

A Wurlitzer Electric Piano

T[illegible]

[illegible] right of way. If the change can be accomplished it will prove a [illegible] the many owners of automobiles [illegible] at present have to be [illegible] passage on ferry [illegible] and delays [illegible] Williamsburg [illegible]


Wurlitzer Electric Piano

I[illegible] change in the plan has been proposed, so that the [illegible] track now on the lower deck of the span will be removed to the upper thoroughfare, to make room for a mo-

New Westinghouse Rectifier

THE type "E" charging outfit is intended for ignition battery charging. It is a small, self-contained rectifier set designed for charging automobile or other sparking batteries. A particular feature is the small space occupied; it can be bolted to the wall at any convenient place, being supported on an iron frame.

A Retrospect

DEAR SIR:—

We were entirely satisfied with the results obtained from our exhibition at the Electrical Show; in fact, our sales were beyond our expectations.

Yours very truly,

NATIONAL VACUUM COMPANY

GENTLEMEN:—

Referring to your valued favor of the 5th instant, would state that we are well pleased with having exhibited at the Electrical Show. We met people whom we are certain we would not have met otherwise, and considerable business has already resulted from our having exhibited at it. We are so well pleased with the results that it is our intention, provided certain details can be arranged, to continue our space for the Electrical Show next year.

Very truly yours,

THE GOULDS MANUFACTURING CO
W E Dickey, Manager

DEAR SIR:—

In answer to yours of November fifth, we would state that so far we have had very satisfactory results from our exhibit in Electrical Show of 1908.

Yours truly,

THE TEL-ELECTRIC MUSIC CO
J S Dillingham, Jr
Gen'l M'g'r

DEAR SIR:—

Replying to your letter of November 3rd inquiring as to the results we achieved at the Electrical Show, we must say they were very flattering to us and that we made quite a number of sales.

We thank you very kindly for your interest, and will be pleased again to use your exhibit in the coming year.

We are using all our endeavors at the same time we are selling our machines, to have people use your current. Any assistance on your part towards this end will be appreciated.

Yours very truly,

THE NUMATICON CO
Sol Mandeling, President

SIR:—

Referring to your letter of November 5th, allow me to say that the results obtained by the U. S. Navy Electrical School from their exhibit at the Electrical Show, were highly satisfactory.

Respectfully,

PHILIP WILLIAMS
Lieutenant Commander, U S Navy,
In Charge of Electrical School.

DEAR SIR:—

Replying to your letter of the 5th inst., regarding our exhibit at the Electrical Show of 1908, desire to state that it proved satisfactory in every way.

Very truly yours,

J HADDON MARTIN
Manager, N Y D S

GENTLEMEN:—

Your letter of the 5th inst. just received. We are very much pleased with the results following our exhibit at Electrical Show of 1908 During the exhibit we received some 3200 or 3300 names of persons who were interested in our apparatus, and since that time we have received letters practically from all sections of the country, asking for additional information with respect to the apparatus exhibited. No doubt their attention was called to it in many cases by means of notice in electrical publications. However, we feel that in many cases it was due to agents attending your Show.

Yours very truly,

MURPHY
ELECTRICITY RECTIFIER CO
By Jas P B Duffy, Treasurer

GENTLEMEN:—

We take pleasure in stating that we were highly pleased with the benefits which were derived from our exhibit at your 1908 exhibition.

The sales at the show and resulting directly from it more than warranted the expense of exhibiting.

We wish to congratulate you also on your management, which was highly satisfactory to exhibitors as well as visitors to the show.

Wishing you continuous success, we are,

Yours very truly,

ELECTRIC HOME SUPPLY CO
Max Loewenthal, President

The Third Annual New York Electrical Show

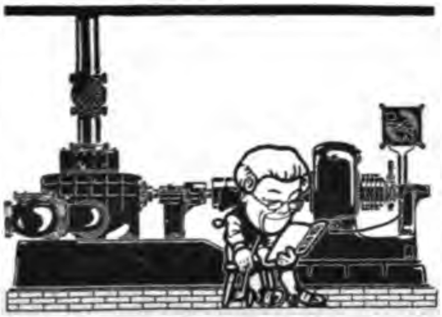
October 11-21, 1909

Mr Manufacturer, are you going to be represented in the great industrial exhibit of the next show?

Manufacturing processes of all kinds will be shown in practical operation.

Current for operating machines furnished free of charge.

Read on the preceding page what exhibitors thought of last year's show.



We have a lot more letters just as good which will appear later.

THE EDISON MONTHLY

VOLUME II NUMBER 2

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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
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The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

We have mentioned before in THE MONTHLY columns the electrical equipment of the New Theatre, Central Park West, Sixty-second and Sixty-third Streets, which will be entirely supplied from Edison Service. One of the most interesting features of this installation is the large number of motors employed and the diversity of their applications. There is a total of thirty-seven motors, ranging in size from one to five hundred horse-power, aggregating 1,131 horse-power in all. In addition to the motor equipment there will be 18,900 sixteen candle-power incandescent lamps.

◆

Lack of variety in the menu should not be complained of where electric cooking appliances can be used, for all the work involved lies in the preparation of the ingredients for cooking. The dusty, dirty work of starting a coal fire is rendered unnecessary in the house where electric cooking apparatus is installed. Heat is immediately supplied upon demand, and is regulated by simply turning a switch instead of piling on coal or opening and closing dampers.

◆

By means of wires which convey the current directly beneath the cooking utensil a steady, even heat can be maintained, the switch enabling the cook to vary the degree of temperature at will. There is no visible evidence of heat—no flame or light, but the warmth can be felt gradually increasing after the switch is turned on. No complicated performance has to be gone through with to obtain electric heat, and a servant ought to manage it well enough. Electric wires connecting the cooking utensil with the floor or wall plug are quickly and easily placed in position, the switch closed, and at once the heating begins. If any mistake should be made, such as turning the switch on before the wires are connected, no serious mishap will occur, and no danger is possible with the low voltages supplied in private houses. Of course if the current is turned on beneath an empty saucepan or kettle, it will be damaged, as would happen over any fire.

Compare this mode of obtaining heat with the old-fashioned one of chopping kindlings, fetching in coal, clearing out ashes from the grate, cleaning the flues, finding matches, laying the fire and waiting for it to burn up, not only waiting for it, but waiting on it all day long. Obviously much time is saved by the electric method of obtaining heat, and considerable money is also saved which might have been spent for coal and kindlings.

* * *

When once an electric motor has been installed in a home, a great many uses will be found for it not previously anticipated. The current consumption is comparatively small, while in addition to the labor saved the convenience is a great item.

For the driving of various household labor-saving devices and conveniences, such as coffee grinders, meat choppers, knife cleaners, boot polishers, polishers and buffers, ice cream freezers, small potato and vegetable peelers, small dish washers, and other machines which are not in use very long at a time, it is well to arrange the motor in a definite position on a table, or on a wall just above a table, in a kitchen or any room where the work is to be done.

* * *

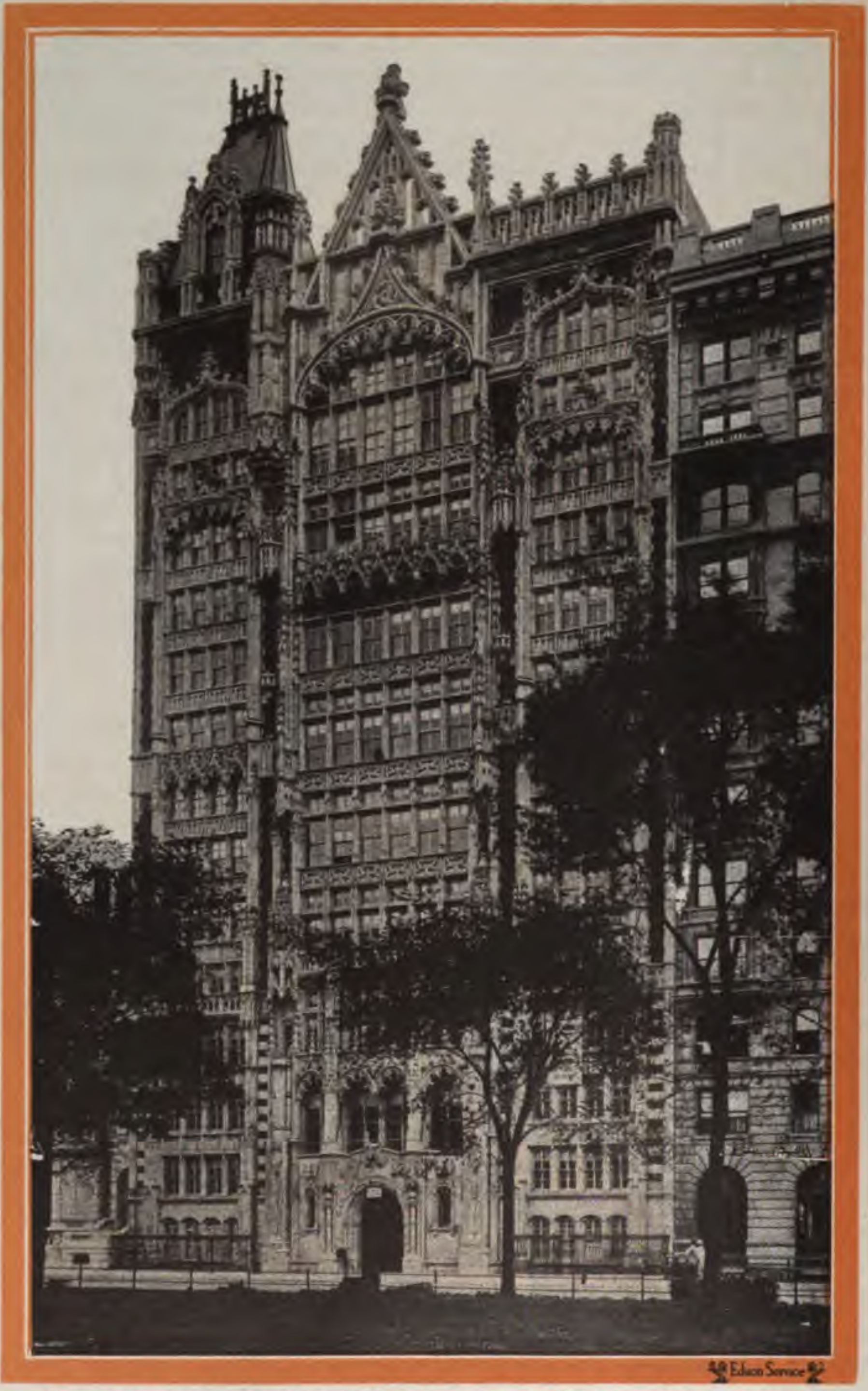
Electric motors are small, compact machines that can easily be moved from one part of the house to another. They are not complicated in construction, difficult to clean, nor liable to get out of order. No such difficulties have to be reckoned with when motors are called upon to do their share of the household drudgery. They are easily adjusted for any work required, and connection with electric circuits is a simple matter.

The uses to which an electric motor can be put in the house are numerous. On washday it can be carried into the wash house and fixed to the washing machine or the mangle. It stands on the floor underneath the machine which it is driving and is therefore out of the way. By means of a pulley on the motor connected by a leather belt to the pulley on the washing machine, the motor operates the machine, and the work is done in a very short time at a small cost, and without fatigue to the worker.

* * *

The same motor will serve for the polisher or buffer. The article to be cleaned is simply held against the rapidly revolving buff and turned about as required, the polishing being done with practically no trouble at all.

Coffee can be ground, meat chopped, shoes shined and knives polished by using a small motor to drive the various machines. One of the most popular uses of the motor is for running the sewing machine, and one that is becoming deservedly popular is its application to house cleaning. An entire house can be cleaned and thoroughly dusted by means of the motor-driven vacuum cleaner, a portable apparatus that sucks up dust and dirt through a nozzle attached by a small hose to a pump.



Edison Service

New Co-operative Apartment Building built by The 44 West Seventy-seventh Street Company, at 44 West Seventy-seventh Street. Edison Service is used for 3,000 incandescent lamps and several hundred horse-power in motors. The architects were Harde & Short, 3 West Twenty-ninth Street

Electric Energy in Medicine

THE up-to-date doctor's office often looks like an electrical testing laboratory. Among his equipment will usually be found induction coils of various sizes, vibrator motors, motor drills, motor generator sets, static machines, storage batteries, condensers, inductance coils, lamps of various descriptions, cauterizers and other heating apparatus. Mechanical and electrical therapy are coming more and more into use for treating chronic ailments, and the results thus far obtained are such as to cause the greatest hopes for the future of this kind of treatment to be entertained.

Electric heat can be more readily and conveniently employed for medical purposes, such as cauterizing operations, than any other form of heat, because it can be kept under perfect control and can be applied without loss of time. Electric heat is also of great convenience for sterilizing clinical thermometers, needles, dentists' lancets and other surgical instruments.

Three New Apartment Buildings, 509-525 West 110th Street. Two of the buildings are owned by the Carlyle Realty Co and the other by the Gracehull Realty Co. Edison Service will supply 6,000 incandescent lamps and 125 horse-power in motors

The Care of Automobile Storage Batteries

INTELLIGENT observation of approved methods of battery maintenance will result in efficient service and demonstrate the superiority of the electric vehicle in all fields to which it is adapted.

Cooper Union Architectural Drafting Room Lighted by Toerring Inverted Arc Lamps. These lamps are fitted with reflectors which eliminate shadows. The even diffusion of the light is clearly shown in the illustration

All storage battery manufacturers give complete and detailed instructions on the operation and care of their batteries, but such instructions are not the same for all types of batteries. The following refers particularly to "Exide" batteries:

Charging current, in all cases, should be direct. If an alternating current circuit only is available direct current may be obtained by means of a mercury arc rectifier, or a motor generator set, the former being more efficient for the purpose. Suitable charging apparatus should be obtained and installed by a competent electrician, or by the vehicle manufacturer. The New York Edison Company is always willing to co-operate in the selection of proper charging apparatus for private charging plants.

To charge the batteries place the controller handle and vehicle switches in the position given in instructions furnished with the vehicle.

Open the battery compartment to obtain as much ventilation as possible. If the cells can be reached, remove the rubber plugs from the covers.

Row of Apartment Houses owned by Mr J Meehan, Intervale Avenue, between Kelly and 163d Streets, Bronx

Do not bring a naked flame near the cells while charging nor immediately afterwards. Accumulated gas is apt to explode.

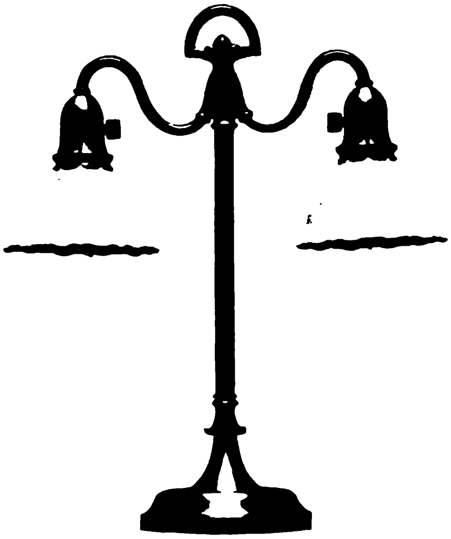
All lamps on the vehicle must be turned off while charging, as, if in use, they are apt to be burned out by the increased voltage. The bell should not be rung.

With the battery switch on the switchboard open, and with all resistance in, place the charging plug in its receptacle on the body of the vehicle, close the battery switch, and by moving the rheostat handle and watching the ammeter adjust the current to the proper starting rate. All battery manufacturers furnish instruction books on charging rates. These instructions should be strictly adhered to. For example, if the battery to be charged consists of twenty-four cells of 9 PV Exide, the charge should be started at nineteen amperes, and kept at that rate until the volt meter indicates sixty-one volts, then reduce the rate to eight amperes and keep it there until the voltage, which fell when the rate was reduced, stops rising, or, in other words, reaches a maximum. This maximum will, in general, be approximately the same as the voltage at which the rate of charge must be reduced.

The time required for a charge will depend upon the amount of the previous discharge. If this has been two-thirds of the capacity of the battery, about three hours at the starting rate and an hour and a half at the finishing rate will be necessary. If the battery has been discharged to the extent of 75 per cent, about six hours will be necessary for the recharge.

When the vehicle is to be charged at night from a rectifier, the regulator may be placed in position and the battery left to charge without further attention, as the current will continue to enter the battery until it is completely charged, then the rectifier will automatically cut off.

Jandus Direct Current Oscillating Fan



Enos Double Portable

If, in case of an emergency, it is desired to charge the battery more quickly than usual, a higher rate than normal, never exceeding 50 per cent over the starting rate, may be used.

Care should be taken to fully charge the battery, but it must not be excessively overcharged. Much injury may be done by pounding a nearly full battery at a high rate.

After completing the charge, and before disconnecting the battery from the switchboard, always turn the rheostat handle back before opening the battery switch.

To get the best results from a battery, it should never be discharged below 1.70 volts per cell, with the vehicle running at full speed on level ground.

The battery should be inspected at least once a week.

Enos Single Portable

Jandus Oscillating Desk and Bracket Fan

AS the name signifies, the oscillating desk and bracket fan is designed to move from side to side through a desired angle, distributing its volume of air over a much larger area than is possible with the stationary desk and bracket fan.

The positive drive oscillating fan motor manufactured by the Jandus Electric Company, 114 Liberty Street, New York, is a radical departure from existing types in that it neither employs the vane principle, nor is actuated by a train of gears, but depends upon the simplest form of differential gear for its angular displacement.

The motor body is mounted within a crescent-shaped yoke by means of two hardened steel pivot points which protrude from the yoke and engage with the top and bottom points on the motor body ring, thus insuring free oscillation about the vertical axis of the motor.

Tungsten Portables

THE Enos Company have placed a new line of tungsten portables on the market, two types of which are illustrated. They are equipped with clamp holders, which act as socket covers, and translucent shades of rich opalescent glass.

Third Annual Electrical Show

SPACE for exhibits in the 1909 Electrical Show are nearly sold. Those desiring to enter the Show should secure their reservations at once.

Jandus Alternating Current Oscillating Fan

Hints on the Care of Electric Automobiles

Baker Electric Queen Victoria

WHEN working on the controller it is well to disconnect one side of the battery to prevent accidental short circuiting.

See that the controller fingers give a fair amount of pressure on the cylinder segments and bear evenly across their width. The fingers may be fitted to the segments by moving a strip of sandpaper between them and the segment, sanded side against the fingers.

If the controller has adjusting screws for regulating the drop of the finger between segments, see that this drop is about one-sixteenth of an inch. It need not be considered on a controller having fibre bridges between segments. In all cases firm pressure and good contact should be obtained.

When using the brakes always be sure to shut off current first, then apply brakes with a slow, gradual pressure. Care must be taken to see that brakes do not bind when not in use, thus causing a needless waste of current. The brake toggle should be so adjusted that there is never less than one-eighth inch of space between the brake shoe and the brake drum, when the brake is in off position. If the brakes do not hold firmly, and are found to be tight enough they may be greasy or oily and should be washed out with gasoline.

Baker Electric Runabout, Model S

Edison Service gives satisfaction.

A New Ozonizer

A NEW form of completely enclosed ozonizer, the invention of Samuel C Shaffner, a Chicago engineer, is being marketed by the National Air Filter Company, of Chicago, and has been installed in several hospitals, as well as in many business places.

The machine is, of course, electrical and takes its current from the ordinary electric lamp socket. Type "A" is suitable for halls, restaurants, theatres, etc.; type "B" for large offices and general use. The outer dimensions of both these are the same, fourteen inches by eighteen inches, as is the weight, 100 pounds.

The method of operation is as follows: An electric fan draws in air at the bottom at the rate of 500 cubic feet a minute. This air is forced through a gauze in which plays a blue, high-tension, electric discharge, which effectively kills off all the bacteria present in the air and transforms a large part of the oxygen into ozone. The purified, ozonized air is liberated through the perforated brass screen at the top. Type "B" takes a power of only thirty-four watts. The combined rotary converter and transformer step up from 110 volts to from 1,000 to 6,500 volts, as controlled by the regulator knob on the side. There is a smaller size, type "C," which is suitable for use in ordinary bedrooms and living rooms. This machine takes but seventeen watts, and the air circulation is effected by means of a heating device instead of an electric fan.

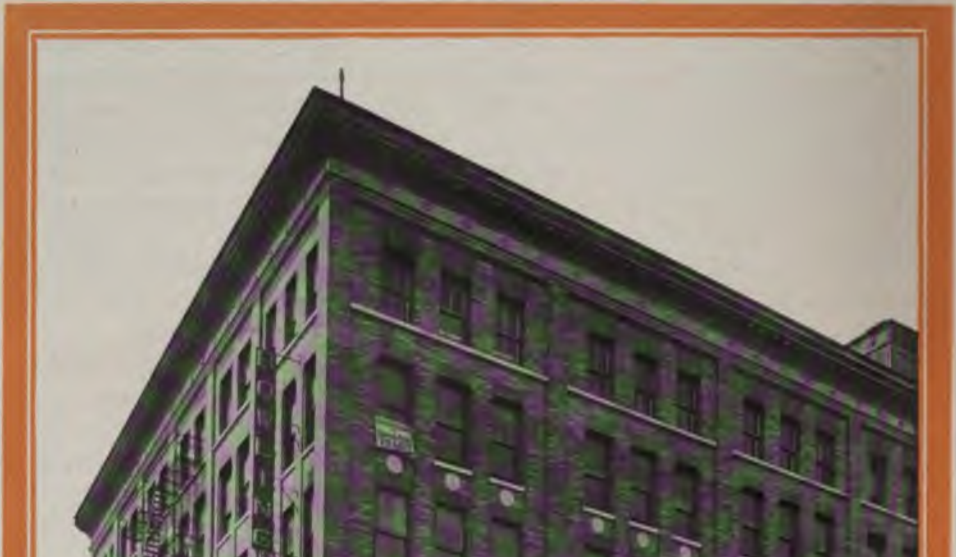
The effect of one of these machines in a room is speedily made noticeable by the sea-breezy smell of the air. Even noxious fumes and tobacco smoke are quickly made to disappear. Owing to the fact that the electric discharge is quite cold, there are practically no poisonous nitrogenous gases produced, and as the machine is entirely enclosed the danger from electric shock is eliminated.

These machines are well adapted to use in hospitals, hotels, residences, on shipboard and in many other places.

*Electrical Review and
Western Electrician.*

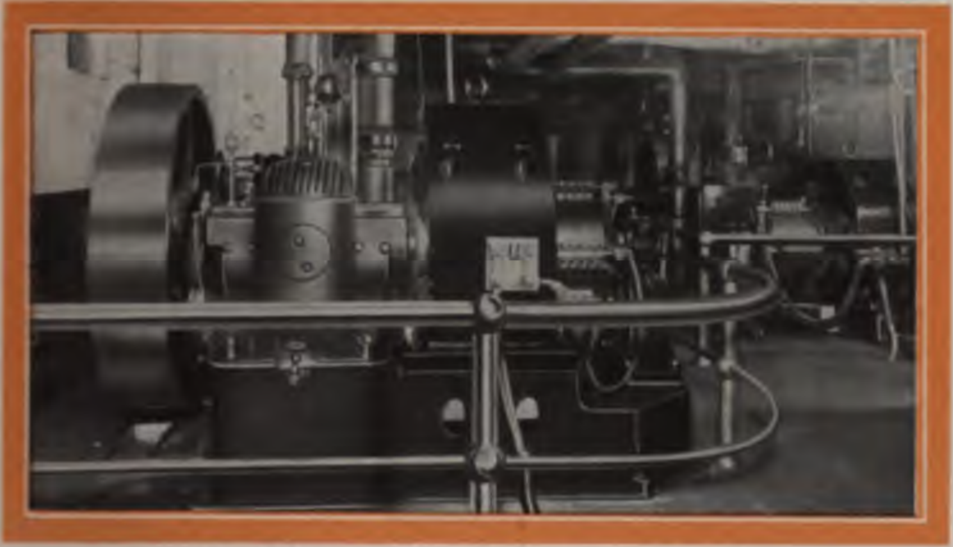
General Vehicle Company's 1,000-pound Wagons used by the New York Post Office

Private Plant Abandoned in the Colonial Building



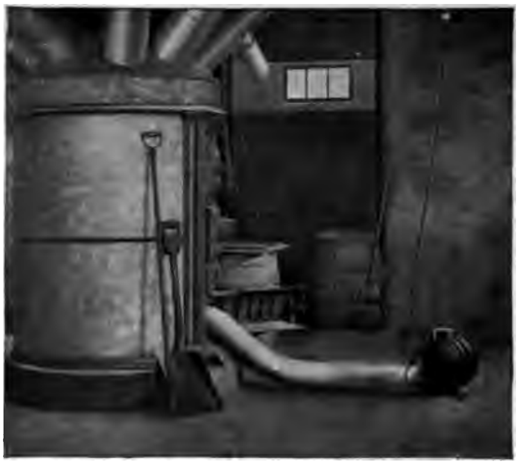
Colonial Building, 828-838 Columbus Avenue. An expensive private plant which supplied 1,500 incandescent lamps and 30 horse-power in motors has recently been abandoned and Edison Service adopted

Part of Abandoned Plant, Colonial Building



View of Other Units in Abandoned Plant, Colonial Building

Electric Ventilation



Furnace Fan in Operation

FOR the ventilation of small rooms or a portion of a building not well ventilated by natural means or by a complete fan system, small fans have been used. These have usually been of the so-called desk or propeller type, because of cheapness and portability. It is a common sight in any large office to see nearly all of the desks equipped with small fans setting in motion the air in the room. The fans, however, produce ventilation that may be termed apparent. With a little consideration one can see that the ventilation is not real, for the foul and overheated air is not removed.

The B F Sturtevant Company is now placing upon the market a new electric ventilating set. It has the great advantage of producing real ventilation. It does not stir up overheated and vitiated air and send it whirling around the room, but removes it completely, so that fresh, pure air may take its place. It is true that this fan is a little more expensive than the desk type, but the results obtained are well worth the difference.

Ventilating Fan in Parlor

It is built in three sizes, all of which are so small as to be readily carried about the building, yet they positively deliver a volume of air so large and at such pressure as to make them decidedly useful. The smaller size weighs but twenty-five pounds and delivers 150 cubic feet of air per min-

"Ready-to-run" Ventilating Set

ute at an operating expense of about one cent per hour. The largest size weighs but fifty pounds and delivers 400 cubic feet of air at a cost of less than three cents per hour. The smaller sizes of these sets are especially adapted to residences and club houses. They are easily transferred, and may be used for ventilating a sitting room or parlor, removing cooking odors from the kitchen, or ventilating the cellar.

In many residences the draft for the furnace is so weak that much time is required before an appreciable quantity of heat is available. With one of these small blowers the draft can be quickly accelerated so that the heat will be available immediately.

These sets, to which has been given the name "Ready-to-Run," consist of a small dustproof motor driving a cased fan of the multivane type. This type of fan is the latest development in centrifugal fans, and, because of great capacity in a small place, these sets deliver a large volume of air, larger than any other fan of the same size and weight. To meet all conditions they are equipped with alternating or direct-current motors and are supplied with a flexible canvas hose for the outlet, and a cord and plug, so that the set will be "ready to run" at a moment's notice. Installation work is unnecessary, as it is made ready for operation by simply putting the plug in the electric light socket and turning the switch.

Put a small motor on your sewing machine. It saves time, strength and patience.

Electric heating, when adaptability is considered, has the field all to itself. The heat can be applied just where it is wanted in any desired degree.

Fan Ventilating Kitchen

The Westinghouse Electric Toaster-Stove

POSITIVELY the last word in the construction of the ideal electric combination cooking appliance for table use is embodied in the design of the new Westinghouse electric toaster-stove, an ingenious, compact and finely finished little utensil which has the combined versatility and serviceability of an alcohol lamp and a whole kitchen range.

Brilliant Electric Sign in the Bronx

It has solved successfully the hitherto vexing problem of a satisfactory electric toaster, besides being available, by the simple substitution of a suitable top, as an electric stove for cooking any of a variety of dishes the housewife may desire. The entire outfit is of artistic form and is finely finished in nickel steel, being designed for use at the table, where toast, cakes, muffins, scrambled eggs and a dozen other breakfast dishes may be served piping hot, prepared by this quickest, simplest and nicest method of modern cooking.

The construction of the toaster-stove may be readily seen from the accompanying illustrations. For toasting, the heater surface is covered with a wire grid, and the uniform toasting heat impinged on the bread insures delicious, evenly browned toast. Used as a cooker, the steel top replaces the wire tray, providing a hot surface for any ordinary cooking operation. If necessary the steel top may be inverted, turning up a narrow rim which serves to retain fluids on the hot plate. The toaster-stove handle can be removed and used as a pancake turner. The toaster-stove will heat water in an incredibly short time and makes an admirable hot plate for keeping food warm. It cannot overheat or burn out, even if left in circuit continuously. In any home innumerable uses will be suggested for this handy little electric heater, which can be carried anywhere and whose manifold accomplishments are available at the turn of a switch.

The Westinghouse toaster-stove measures seven by eleven inches and weighs five pounds. It is furnished complete with heater, toasting grid, cooking tray, detachable cord connection and crumb tray. The heating element is of the well known Westinghouse type, and is practically indestructible. The toaster-stove consumes 500 watts and is made available for any voltage from 100 to 125 volts.

Westinghouse Electric Toaster-Stove

Electrically Driven Coffee Roasting Outfit

THE accompanying illustrations show several views of Jabez Burns & Son's, New York, No 7 Coffee Roasting Outfit driven by an electric motor. This apparatus handles fifty-pound to half-bag lots of green coffee and will roast any smaller quantity desired. It consists of a cylinder roaster, heated underneath by atmospheric gas burners; a revolving cooler cylinder, fed direct by the roaster discharge; a suction stoner to which the cooled coffee is fed automatically; an exhaust fan, with gate-controlled connections to the stoner hopper, the cooler suction box and the roaster smoke box.

The single machines are driven by a two-horse-power motor and require for successful use the same sort of coffee knowledge and machinery care that is necessary for running any well equipped coffee roasting establishment.

The machine is mounted on a heavy wood base, covered with galvanized iron. The base is shipped with the fan and cooler attached in their proper positions, so that the work of installing the apparatus is a very simple matter.

Power for the whole outfit is applied at the front end of the fan shaft. The rear end of this shaft has a pulley with belt which transmits power to gearing on the roaster back plate for driving the roaster and cooler cylinders.

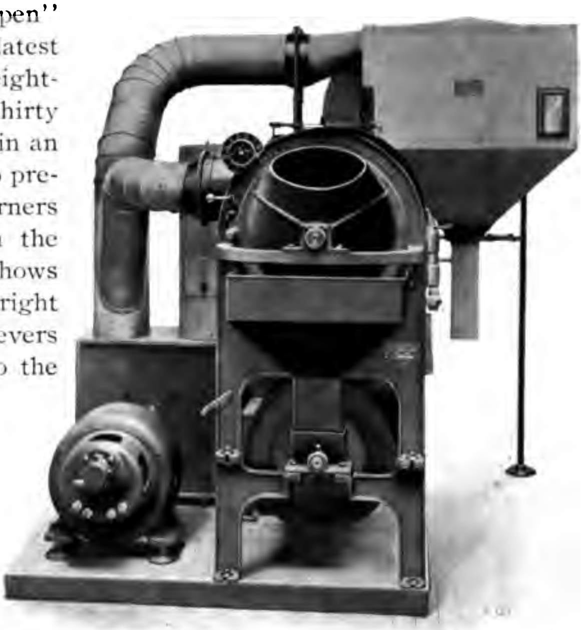
The usual way of applying power is by an electric motor coupled direct to the fan shaft. A motor is furnished for this purpose arranged with a special jaw-clutch coupling

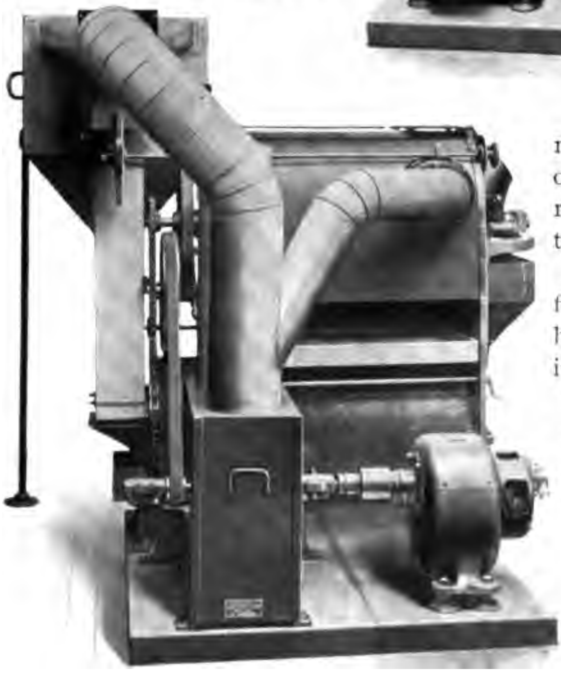
Toaster-Stove With Wire Grid Removed

having a pulley on the motor shaft. By throwing out the clutch the motor will run without turning the fan, and may then be used for driving a mill or other apparatus.

The roaster cylinder is "open" perforated, similar to the latest large Burns machine. It is eighteen inches in diameter by thirty inches long, and is enclosed in an arched chamber of asbestos to prevent loss of heat. The gas burners are placed close underneath the cylinder. The upper cut shows the gas connection, at the right of the front plate, with the levers which regulate the supply to the two burner pipes.

Green coffee is put in the roaster through the large opening in the front head. During the roast this opening is closed by a hinged flap sliding on top of the roaster. By raising this flap the coffee can be inspected and sampled at any time. The smoke pipe on the left, connected with the fan inlet, carries off the smoke and steam of roasting, and this suction is controlled by a convenient damper.

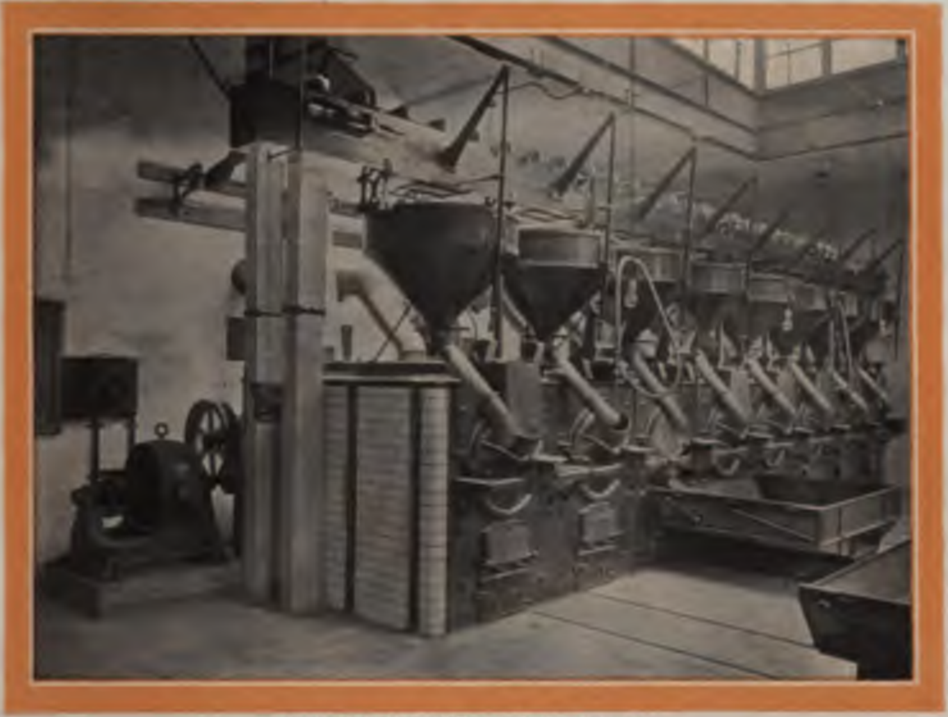




Front and Side View of Burns' Motor-driven Coffee Roaster

When the roast is finished the flap is pushed back, the front head is turned over (by releasing the latch at the left), and the hot coffee is discharged through the chute directly into the cooler cylinder. The crank end of the damper rod, which projects in front, is turned so as to open the gate between the fan case and the suction box of the cooler cylinder, and the air drawn through the moving coffee cools it with perfect uniformity. This revolving cooler system is the latest cooler improvement in large roasting establishments.

When the coffee is cooled the cooler gate is closed and the fan suction is directed through the stoner hopper to lift coffee from the cooler up through the stoner pipe. The stoner gate is operated by a rack and pinion rig controlled by a hand wheel at the front of the machine. This hand wheel has a pointer working against a dial plate so that the stoner gate can be set accurately to give the right lifting suction in the stoner pipe. All the coffee passes up into the hopper, and the stones or other heavy particles which are left below are then sent into the pan underneath by tripping the hinged bottom of the perforated basket. The average time of roasting is twenty to twenty-five minutes.



An Installation of Burns Coffee Roasters

Electric Scales in the Custom House

THE customs authorities have announced a plan to prevent fraudulent weighing of merchandise on the piers by means of electrical scales. The new system involves the installation of electric dials in the Custom House, which will be connected with the weighing machines on the docks by wires. The machines will record the scales automatically, thus forcing the weighers to keep an absolutely accurate check of their operations each day.

Edison service gives entire satisfaction.

Hoover's Electric Suction Sweeper

THE electric suction sweeper shown in the illustration embodies several interesting features. The revolving brush raises the nap of a carpet or rug and wipes out the little matted paths that appear between doorways and where the most walking is done.

Hoover Electric Suction Sweeper

In addition to sweeping floors, these machines are supplied with special attachments for cleaning curtains, portieres, moldings, stairways and the few places on the floor that cannot be reached by the sweeper itself. This is easily accomplished by attaching a length of hose and a nozzle to the machine. These attachments are neat in appearance, easily handled, and exert sufficient suction to do all work for which they are intended. The Electric Suction Sweeper Company, 91 Wall Street, are the manufacturers.

Electric Motor Starters

THE float switch is used in connection with a copper float, chain and weight for automatically starting and stopping motors operating pumps on open tank systems, the method of installing the apparatus being shown in one of the illustrations. By adjusting the two buttons shown on the chain passing through an eye in the arm of the float switch, this arm will be moved up or down whenever the water in the tank reaches a predetermined high or low level, thus opening or closing the circuit to the solenoid of the self-starter, which in turn operates to stop or start the motor.

In cases where it is desired to automatically start or stop a small single-phase motor which may be thrown directly across the line, the equipment shown may be used without a self-starter, provided the motor is of the self-starting or polyphase squirrel-cage type and is installed at

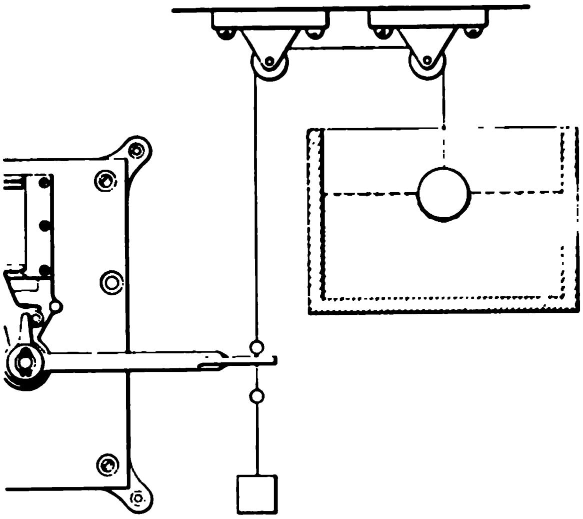


Diagram Showing How Float Switch is Operated

no great distance from the tank and float switch. If it is necessary to locate the motor at a distance from the tank, then the cost of wiring between the float switch and motor will become excessive and economy will dictate the use of a self-starter in connection with the float switch.

The latter arrangement necessitates the use of only two small pilot wires between the float switch and self-starter, the current carried in these wires being merely that required to energize the solenoid of the self-starter. The main line current is carried in the wires which connect the self-starter to the motor, and if these are placed close together the heavy wiring will be reduced to a minimum. The self-starter illustrated is standard in sizes from 1 to 15 horse-power, but can be used only with single, two or three phase motors which can be thrown directly across the line to start. As indicated above, it can be used in connection with a float switch and copper float on open tank systems, and by substituting a pressure regulator for the float switch it can also be employed for automatically starting and stopping motors operating on compression systems.

Float Switch

Duntly Standard Vacuum Cleaner

The Duntly Cleaner, aside from its regular use for cleaning floors, walls and draperies, has several novel attachments. A current of pure, fresh air from the exhaust may be used for drying the hair. A vibrator attachment is supplied, operated by suction, which is equal to any electrically operated vibrator. The exhaust may be used to advantage for cleaning ladies' hats and laces.

Central Station Service insures a degree of cleanliness not possible on premises where a private plant is operated. Edison Service is clean, economical, reliable and always instantly available. There is no heat, no smoke, nor any disagreeable odors.

Duntly Standard Vacuum Cleaner

Curfew Will Ring By Electricity

ELECTRICIANS are wiring the old watch tower, which stands on the highest point of Mount Morris Park, and curfew shall ring again for Harlem's swains. Curfew by electricity is suggestive of such a paradox as Rip Van Winkle being arrested for speeding in a forty-horse-power runabout, but the firemen of Truck No. 14, in East One Hundred and Twenty-fifth Street, near Lexington Avenue, could not be spared during the time necessary to climb the hill and toll off the curfew strokes, and after the big bell in the tower was left in silence for two years it was decided to run a wire to the Fire Department's system and restore the curfew to the Mount Morris people.

Westinghouse "Type E" Rectifier for Charging Ignition Batteries

The tower was built in 1859, and day and night a watchman scanned the skies over the city to sound the alarm at the sight of flames to north, east, south or west. In the old days three strokes from the big bell meant fire in the Yorkville section, four meant fire in Bloomingdale, five were tolled for Harlem, six for Manhattanville and seven for Carmansville.

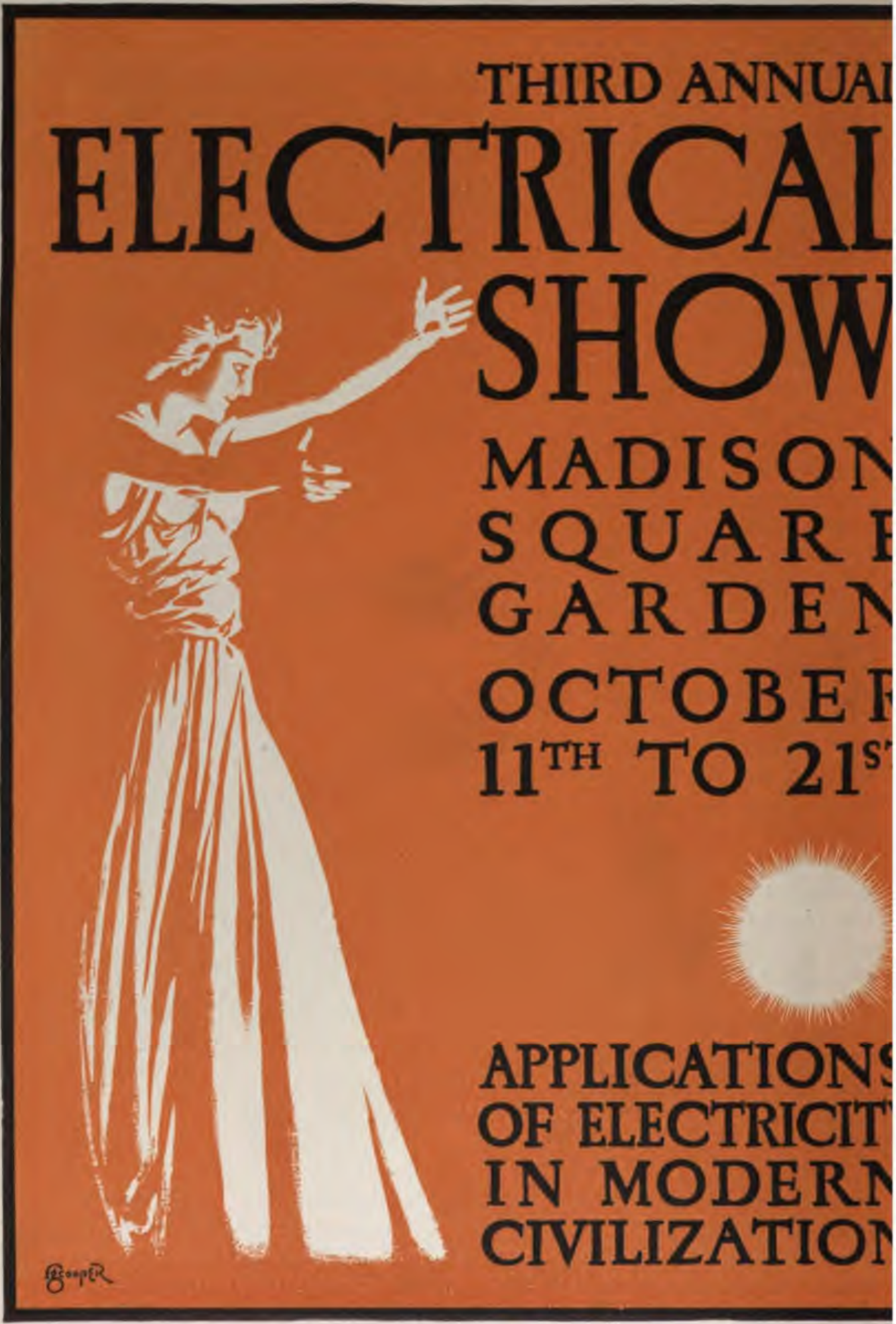
The hour was tolled at 8 in the morning, at noon, and the curfew bell was rung at 9 at night.

There is no need for a fire alarm from the old bell these days, and the watchman on the tower would have but a short vista because of the tall apartment buildings, but the Mount Morris people have come to love the soft booming of the old bell, and for years housewives have regulated their clocks by it. Their petition to have their curfew bell restored resulted in the adoption of the modern method of bell ringing.

The largest fire of which the Mount Morris bell ever gave warning to the Volunteer Fire Department was when the Lion Brewery was destroyed, along with a goodly section of Bloomingdale, fifty years ago.—*Exchange.*

Electric energy is far ahead of all other forms when it comes to adaptability, which is unlimited. New ways of applying it are invented every day? Electric lighting can be adapted to suit any imaginable architectural scheme without entailing the slightest fire risk.

Electric motors can be applied to all commercial machines and appliances where power is needed in any desired quantity and at any desired speed.



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THE EDISON MONTHLY

VOLUME II NUMBER 3

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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
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The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

Never before have the advantages of central station service been more fully recognized than at the present time. This fact is well evidenced by the large number of new buildings erected on Manhattan Island which have adopted Edison Service in preference to any other source of supply. During the year 1908, 262 new buildings of large size were erected. Of this number all but eight, 3 per cent, have used current supplied by The New York Edison Company continuously since their completion.

* * *

The original plans of the new building of the *New York Times*, Forty-second Street and Broadway, included a very complete generating plant. After a thorough investigation on behalf of the owners of the merits and economy of Edison Service, all idea of a private plant was abandoned. Some time after the completion of the building, Mr. John Norris, who was then the business manager of the *Times*, gave nineteen reasons why the Edison Service was considered superior to that of a plant. These, with additional reasons, were published in the October, 1908, issue of THE EDISON MONTHLY, which will be mailed to interested persons upon request.

* * *

From a sanitary point of view electric heating stands pre-eminent. An electric radiator uses up none of the oxygen in the air, nor does it vitiate it in any way. It absorbs little or no moisture, as there are no intensely hot surfaces to come in contact with the air. Neither does it give off unhealthy fumes of any sort. This is one reason why it is such an invaluable means for heating a nursery, for it does away with the fruitful source of bronchitis, the sulphur fumes from coal fires.

When energy is supplied to machinery from an engine it is very difficult to ascertain whether the machinery is working at its best or not, and whether there are any undue friction loads developing. If a motor is driving machinery, however, it is very easy to determine from time to time the amount of power consumed when the machines are running light, and if this amount shows a perceptible increase it indicates at once that there is undue friction, which can be easily located and the necessary remedy applied. This, in itself, is a very valuable feature of electric driving, as it often discovers, especially in shops running on piece work, the abuse of lathes, screw machines and similar appliances by the piece workers having care of them.

As lathes, screw machines, saws, drills, and in fact the greater number of machines ordinarily required in a shop run at comparatively high speeds, fewer belts and pulleys are necessary for actuating them when driven by motors which have a rather rapid rotation than is necessary when they are driven by shafts, which rarely revolve more than 240 times a minute.

* * *

There is no reason why the electric automobile for business or pleasure should not give entire satisfaction. For business, it has been repeatedly demonstrated to be much cheaper than horses; for pleasure there can be no question concerning either convenience or cheapness.

At the outset one must admit the limitation of the electric automobile; it does not equal the gasolene car in touring range. When one wishes to go touring, which is not often, the electric car should not be taken. But, with this limitation removed, for all ordinary purposes the electric is the ideal vehicle.

Cars are now in the market which run from seventy to 100 miles on a single charge. For example, an electric car was recently run from New York to Atlantic City without recharging. These cars can be operated at speeds of from thirty-eight to forty miles an hour. For hill-climbing they equal the large gasolene cars.

The simplicity of the electric automobile is one of its striking features. Two brakes, one for each foot, a small switch going from zero to full speed in six or nine steps and a steering wheel constitute the operating mechanism.

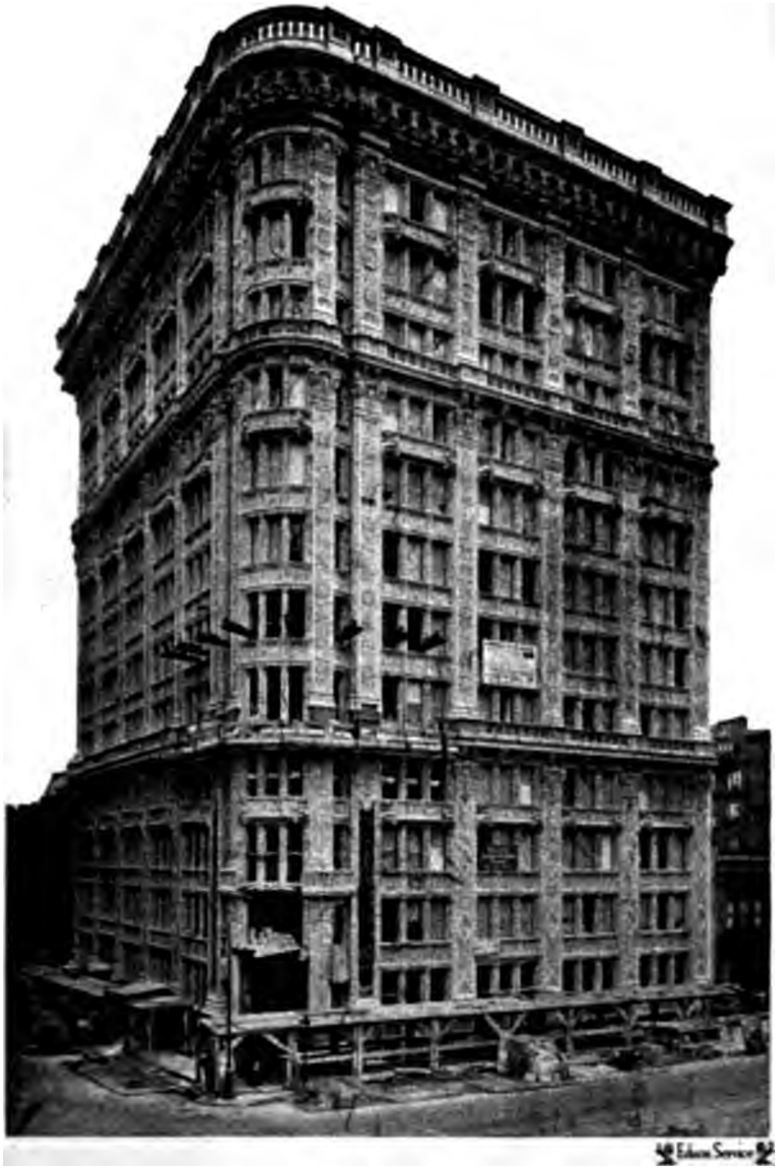
* * *

One of the smaller types of vehicle will travel 100 miles on seven kilowatt hours. Many garages purchase current for five cents a kilowatt hour, making this mileage cost thirty-five cents. We believe from seven to ten gallons would be required in gasolene cars of like size, costing from fourteen to twenty cents a gallon. The comparative cheapness of the electric machine is obvious.

As with the electric motor, it is the opinion of many that the day is not far distant when for all ordinary purposes of travel within a daily radius not exceeding from fifty to 100 miles the electric will entirely replace the gasolene car. Its many advantages make this the only logical view.

Edison Service in Large Buildings

The Hendrick Hudson, 2841-7 Broadway. Architects, Messrs Rouse & Sloane, 11 East Forty-third Street. The electrical installation consists of about 6,000 incandescent lights and 500 horse-power in motors



Alvin Court, 911-17 Seventh Avenue. Architects, Messrs Harde & Short, 3 West Twenty-ninth Street. Installation about 5,000 lights, 600 horse-power in motors

Wireless Atlantic Service

A COMMITTEE of the Imperial Press Conference, recently in session in London, reported that Marconi had stated to the committee that by August he hopes to supply a press service for 15,000 words a day, at least, across the Atlantic at five cents per word; the present cable rate is ten cents per word. Marconi also said that he believes it possible in the near future to communicate by wireless over a distance of 6,000 miles or even more. The present speed of wireless messages across the Atlantic is, he said, thirty-five words a minute, but it is hoped soon to increase this to fifty words.—*Electrical World.*

Edison Service

The Allenhurst, 2632-34 Broadway. Architect, W L Rouse, 11 East Forty-third Street. Installation 3,500 lights, 350 horse-power in motors

New York Electrical School Exhibit

AN interesting exhibition of the work of the students attending the New York Electrical School was given in the school building, 39 West Seventeenth Street, during the last two weeks of June.

Working exhibits and a large number of drawings well illustrated the excellent work of the students, which were interestedly inspected by a large number of visitors.

Apartment House Upon a Co-operative Plan

A RECENT issue of the *Record and Guide* contained the following description of a co-operative apartment building under construction on Gramercy Park. The New York Edison Company has been awarded the contract for supplying current to the entire electrical equipment, consisting of 1,200 incandescent lamps and fifty-five horse-power in motors. The *Record and Guide* said:

"Gramercy Park, which has retained its old-time distinction as a fine residential district, and which in later years has become also a club center, is soon to have a unique co-operative apartment house, in which seven families will be housed. The structure will cover Nos 24 and 25 Gramercy Park, originally the site of the private residence of Charles H Lee, while on the other plot recently stood the old Gallatin house. Work on the foundation is now under way by the Thompson-Starrett Company, which has the general contract. The structural design, which is along high-class Colonial lines, will be simple, although the building will be rather an expensive one, representing an investment of over $350,000. A new idea of interior arrangement will be carried out on the duplex plan. There will be projecting balconies from each apartment overlooking the park.

The first two stories and trim will be of buff Indiana limestone, and above this oven-burned brick laid in Flemish bond The interior will be strictly Colonial, with open fireplaces, halls, wooden columns, white woodwork and mahogany doors. All apartments will be provided with fireplaces, some of Roman brick and others of Grueby tile.

Nearly every suite will occupy two floors, the sleeping rooms being placed over the library, foyer hall and dining room, with connecting staircase. Arranged in this way the apartment takes on the appearance of a private dwelling, while it retains all apartment house conveniences. In addition to the apartments occupied by owners, there will be eleven for other tenants, and the rents derived will go into a general fund to cover the taxes, repairs and running expenses of the building.

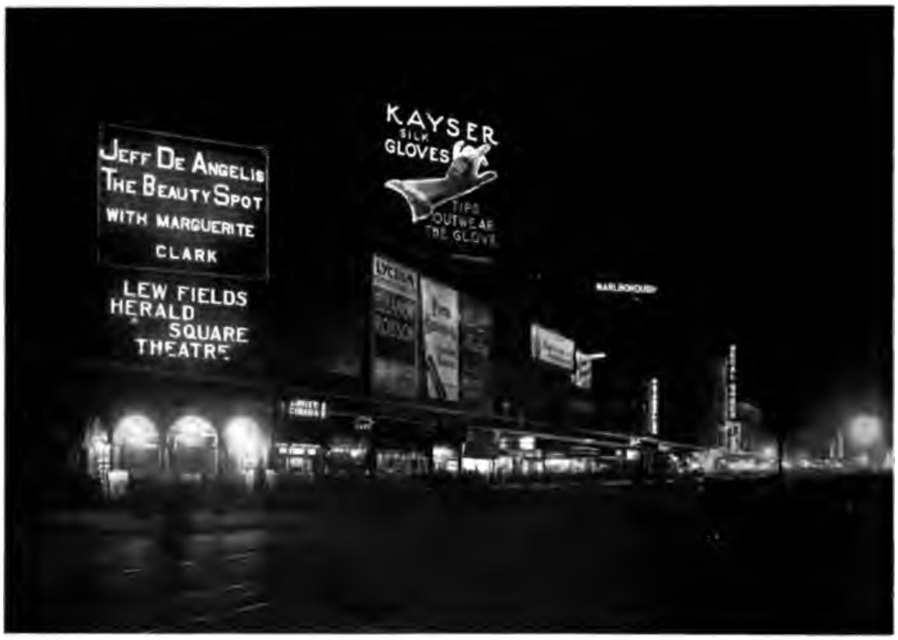
"The Number 24 Gramercy Park Company" is composed of Francis Wilson, the actor; Herbert Lucas, architect of the building; Richard W Gilder, Rodman Gilder, Jules Guerin, Charles H Lee, of the United States Leather Company, and John B Pine, lawyer and treasurer of Columbia University, all of whom will make their permanent homes in the building.

Electricity Replaces Steam

ELECTRICITY is rapidly displacing steam as a means of raising the dry docks and other purposes at Erie Basin. Eight months ago the 400 horse-power motors were put in to raise the new steel dry dock and proved so efficient that they cut the time of operating from forty to twenty minutes. Since that time there has been a constant growth of the electric plant.

"The Electric Sign Business"

A RECENT number of *The National Electric Contractor* contains a very timely article bearing the above title. The following paragraphs contain a digest of the article, which will be of interest to all business men:



Herald Square at Night. View looking north

"During the summer months everybody is out of doors, and large numbers of strangers are in town, so merchants want to make themselves known and draw the wandering outdoor crowds to their place of business.

"Stores, cafes, hotels, theatres, etc., not labeled with an electric sign are likely to be passed by, even by the person who is actually looking for such a place.

"This being so, it is a matter of utmost importance to the man at the helm of a business to consider carefully the trade-pulling value of an electric sign, and see to it that one is placed before his store or business place.

"Merchants display their goods attractively in their show windows, so why not let people know to whom the window belongs by an electric sign.

"People will associate their name with their window, and their goods with their store, and when they want a thing which they sell the buyers will invariably think of the store with the electric sign—they will go and purchase it at that store.

"The time is coming when every up-to-date merchant will consider an electric sign just as much a necessary part of his store equipment as his show windows.

"Merchants are beginning to realize that electric signs also make their street inviting, cheerful and attractive."

The Choice of Motors

IT is of the utmost importance to users of electric motors that the machines purchased be not only of high efficiency, but of the proper size and winding to perform the work in hand. While it is well always to purchase a motor having a small margin of power above actual requirements, it is not desirable to buy one much larger than is needed, unless additional load is to be taken on in the immediate future.

The best motors are so designed that they possess maximum efficiency for continuous running at their normal rated output, and it should be the aim to so subdivide the grouping of machinery that the motors in use may, so far as possible, operate at their maximum output when running at all. In equipping a factory a number of machines will often be found which are used intermittently. As a rule, it is not desirable to drive such machines from motors that are operating other machinery continuously, for if this is done, then during certain periods, when the intermittently used machines are idle, the motor will be working at partial load and at a point much below its best efficiency. Only during a portion of the time, when the machines intermittently used are at work, will the motor be carrying its full load and doing its work in the most economical manner.

Times Square at Night. South from Forty-seventh Street

Better regulation is maintained on the distribution system supplied by the Central Station, insuring a uniformity of speed of the motors, which increases the output.

Edison Service Succeeds Private Plants

Part of Abandoned Plant, Messrs Colgate & Company's Building

WE illustrate on the following pages three plants that have been succeeded by Edison Service. Two of the plants furnished light and power to business buildings and the third high-pressure steam for pumps that operated hydraulic elevators in a large apartment building.

Colgate & Company's building, the John Street side of which is illustrated on the opposite page, is a large L-shaped structure extending through to Dutch Street. The plant consisted of a McIntosh, Seymour & Company's engine belted to a 40-kilowatt generator and a Ball & Wood engine direct connected to another 40-kilowatt generator.

The apartment building at 200 West 113th Street has removed the high-pressure steam plant, and the illustration on page 61 shows the destruction of a wing of the building necessary to take it out.

The private plant in Berkenfeld & Strauss building supplied about 600 incandescent lamps and sixty-four arc lamps.

Another Part of Abandoned Plant, Messrs Colgate & Company's Building

The Function of the Electric Furnace

A RECENT article in *Electro-Chemical and Metallurgical Industry* discusses the commercial aspect of the electric furnace. It should not be overlooked that the introduction of the electric steel furnace does not mean the scrapping of existing metallurgical plants. The electric furnace is not a competitor but a supplement to existing plants. The electric furnace not only does not mean scrapping of old plant, but it seems destined to prevent the scrapping of old plant, as it promises to give a new lease of life to the converter. The general tendency of recent years has been away from converter steel toward open-hearth steel. It is at this point that the electric process steps in, since the combination of the converter with the electric furnace should satisfy all reasonable requirements. This fact and the undeniable tendency of the times to demand better steel for general purposes, are considerations of utmost importance, if it is questioned whether the cost of electric steel refining is worth the price.

Messrs Colgate & Company's Building. John Street Front.
This building extends through to Dutch Street

A Large Installation of Electric Delivery Wagons

THE passing of the horse was never more significantly indicated than by the contract just executed between the H C and A I Piercy Company and the Studebaker Brothers Company, of New York, in which the former purchases from the latter an equipment of automobiles whereby the motive power of its present immense delivery contract business will be changed over from horses to machines.

This marks the conclusion of one of the many large calibre deals which it is known the vigorous management of the Studebaker Company has at present under consideration; and its importance will be recognized from the fact that this one move will replace with automobiles the horse delivery service of at least sixty-six of the prominent business firms of New York City.

The Piercy Company's business has been under development since 1870, and thirty-seven years of consistent performance has given it stability on a par with the unique and excellently efficient service which it renders with horses, wagons and men, operated from a central station. This service provides a characteristic individuality to each customer equivalent to that which a private stable would afford without any of the attendant investment or worrisome detail; and in addition assures the customer that continuity of service which only the operation of a quantity of vehicles from a central station can furnish.

Edison Service

Apartment Building, 200 West 113th Street and 203 West 112th Street, owned by Mr Frederick W Mertens. An expensive high-pressure steam plant has been removed and full Edison Service substituted

As evidence of the painstaking forethought which has been given this project, it may be stated that before this step was finally taken by the Piercy Company almost a year has been occupied in the refinement of detail under which the new system will be carried into practice, and the entire service now rendered by this company was first thoroughly analyzed by the engineering department of the Studebaker Company. As insurance to the Piercy Company and its customers, its mechanical department will have the guidance and direction of the Studebaker Company's engineers until the Piercy organization is thoroughly qualified to handle the installation independently.

The present headquarters of this company is located on West Fifteenth Street, and consists of a six-story and basement building, containing about 90,000 square feet of floor space. The structure is a comparatively new one and is practically fireproof Two elevators are in service capable of handling the heaviest machines; and the stable fittings with which this building is at present equipped were installed in such a manner as to permit their easy removal whenever the building should be devoted to automobile garage purposes.

It has at present an equipment capable of caring for 400 horses and 250 delivery wagons and trucks, and with the use of machines there will be ample accommodation for about 500.

In Brooklyn there is a sub-station on Clermont Avenue which will accommodate fifty machines; and it is projected to locate in the Bronx, on Long Island and in New Jersey additional sub-stations for the accomplishment of delivery throughout these territories. It is generally conceded that the conversion of the equipment of this well-known and reputable organization will add considerable stimulus to

Broadway, Looking North from Fifty-ninth Street, at Night the use of commercial automobiles in New York City, and will lead many firms into the use of machines who would otherwise hesitate for some time to invest in them. The economy and utility of mechanical transportation is now generally well recognized, but many firms of a conservative tenor postpone for some considerable period the actual purchase of machines. If automobile service can be secured on a rental basis there can be no question as to immediate and broad development.

Electric Vehicles for Mail Service

ON July first ten additional electrics were placed in commission in New York City to cover the regular mail service which took effect at that time.

The carrying capacity of the last ten wagons was as follows: Four of 1,000 pounds, four of 2,000 pounds and

Building of Messrs Berkenfeld & Strauss, 65-67 Wooster Street, where a private plant has been abandoned. The Edison System is economical for the small and medium sized buildings as well as for the largest two of 4,000 pounds capacity respectively. The bodies are in accordance with the regular mail service; wire service type with red, white and blue trimmings.

A Corner of the Private Plant in the Berkenfeld & Strauss Building. Edison Service now takes its place.

An Electric Furnace

A NOVEL idea is illustrated in an electric furnace design for fusing of lenses in the manufacture of bifocal glasses which is in use in the optical establishment of Mr C Levoy, at 24 East Twenty-third Street. The furnace is constructed of a mixture of asbestos and fire clay in which is embedded platinum wire, which serves as the heat producing agent when current is passed through it. No controlling resistance is needed, as 120 volts are applied directly to the furnace through a single throw, double pole switch. In starting eleven amperes are consumed, which are gradually reduced to eight after three minutes, the time required to make the furnace redhot. Five to seven minutes are needed to fuse the lenses together; at the end of the operation the current has dropped to five amperes. The gradual decrease of the current is due to the steady increase of the temperature, which increases the resistance of the platinum wire.

A very high temperature is possible with this type of furnace, although only 800° Fahrenheit are required to fuse the glass. The dimensions of the furnace are about eight inches square by nine high outside, and about four inches square by three high inside.

This method, as used by Mr Levoy, is a decided advance over the old way of cementing the lenses together. The fusing of the glass is perfect, the focal lengths of the lenses are not changed, and consequently the finished glasses show no joint, are stronger, and in fact in every way more satisfactory.

To Electrify Harlem Road

THE first step looking toward the elimination of grade crossings and the transforming of the Harlem Railroad's line from Wakefield to White Plains into an electric four-track rapid transit system, and which improvements have been hanging fire for four years, was taken yesterday when the Public Service Commission announced its decision. The company has already begun work on its electrification of the road.

Charging Automobile Storage Batteries

BATTERIES are sometimes charged too frequently. For instance, if a battery will run a vehicle forty miles on one charge, and the vehicle is run five miles, then charged, taken out again, run nine miles and charged again, then is given another run of ten miles and is charged, and again a third ten miles is made, followed by a charge, the vehicle has been run only thirty-four miles, but has been charged five times.

The greatest wear on the plates of a battery occurs during the final part of the charge. In treating the battery as above it was charged four times oftener than necessary, and then did not make the mileage it was capable of on one full charge. In other words, when a vehicle is in daily use for short runs money is saved on the current bill and the life of the plates is prolonged if the battery is not charged until 75 per cent of its capacity has been exhausted.

Magnetos and the Automobile

ACCORDING to J S Bretz, President of the J S Bretz Manufacturing Company, New York, N Y, importers of the Unterberg and Hehmle high-tension magnetos, the year 1910 will see the magneto in undisputed possession of the ignition field. Mr Bretz avers that next year the magneto will be furnished as an integral part of the gasoline automobile and not offered as an extra or an option at an additional price.

Lighting of Fifth Avenue, South from Sixtieth Street, Looking Through the Plaza

Industrial Heating

IN the majority of trades heat is required at some stage of the work to a greater or less degree, and electricity will be found a most efficient means of supplying the degree of heat desired, without any delay, fumes, danger, or risk of fire. The electric tailor's goose is fast becoming an important factor in the manufacture of clothing. By its use the liability to damage by soot is eliminated and the general temperature of the room is not raised. Electric hatter's irons and laundry flatirons of every description are a great factor in the improvement, the amount and quality of the work done. In the laundry the rolls as well as the flatirons should be heated electrically, for electric heat is always uniform. Laundry machinery heated by other means can easily be adapted to electric heating.

The cost of operating electric irons is less than the cost of coal for laundry stove when used only to heat irons. It has been estimated that each worker with ordinary sad-irons loses one minute out of every ten trying to keep them at the right temperature for use. This means over a month in each year. Electric irons maintain their proper heat steadily.

There is no journeying to and from the stove for hot irons; no scraping or waxing; quicker, cleaner, and cooler work than by any other method. The irons are simple in construction, convenient, durable and reliable.

Don't forget the great industrial exhibit at the coming Third Annual Electrical Show, October 11-21. Every class of manufacturing will be represented.

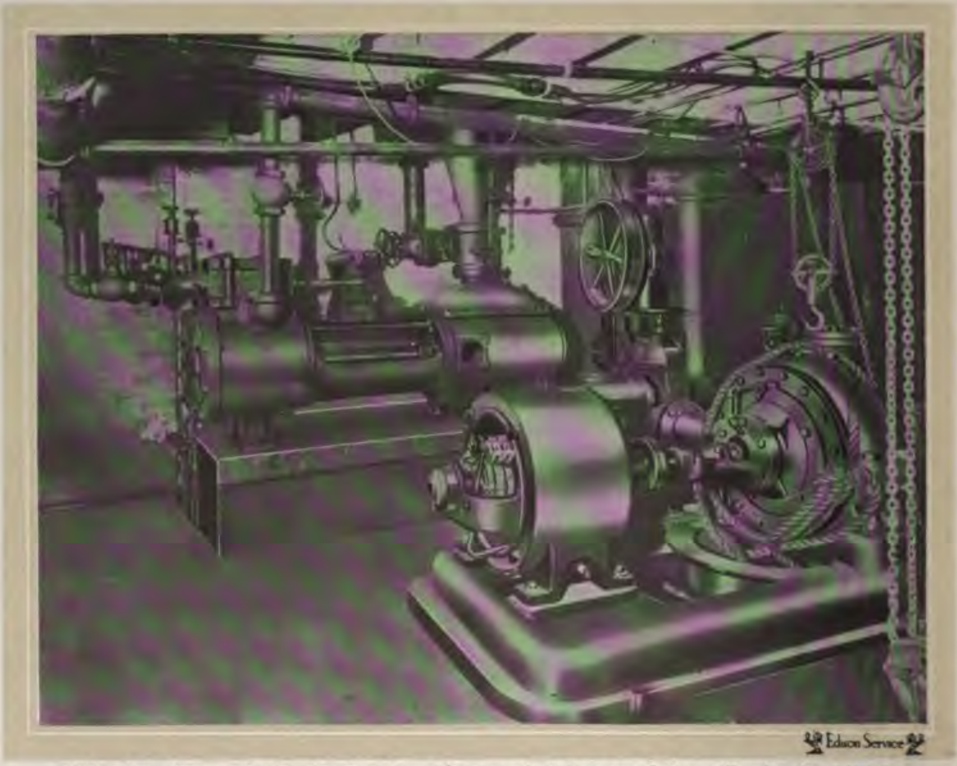
Gansevoort Market at Dawn

Electrical Contractors' Outing

THE Fifth Annual Outing of the Independent Electrical Contractors' Association of Greater New York was held at Wetzel's, College Point, Long Island, Saturday, July 10th.

President A Newberger, assisted by the Entertainment Committee, was at the rendezvous (Long Island City) long before the bell, and as each of the invited guests arrived they were received in that broad spirit of friendliness for which the Independents are appreciated. The President and Committee are thorough, and the guests were made so comfortable and happy that they were in glory, and as the members and friends gathered, the scene was one that gladdened the hearts of the entire Committee, who had worked hard to bring the best of every branch of the trade into social and business relationship.

The cars were filled up to overflowing by 1 P M, as the music of the celebrated Triebig's Band stirred everybody to bear in mind that the day's fun was about to commence, and away went the jolly party in joy, singing the good old love songs.



Edison Service

This view shows a hydraulic elevator and a new electric pump that supplies it with power. The building, 600-2 Broadway, is owned by Messrs S Steinfeld & Company. The electrical equipment consists of three direct-connected electric elevators and one motor-driven pump. The apparatus was installed by J S Humbert, 100 Broadway

Peerless Suction Cleaner

Peerless Suction Cleaner

THE illustration on this page shows a Peerless Suction Vacuum Cleaner, manufactured by the Manufacturers' Outlet Company, 98 Chambers Street and 71 Reade Street. This cleaner weighs only about 30 pounds and can be easily carried about. The dimensions are: Eleven inches wide, 21 inches long and 14½ inches high. The suction is strong enough to draw the dirt from the entire body of the fabric, and the cost of operation is about two cents an hour.

A New Tungsten Lamp Device

SHAPIRO & ARONSON, of New York City, are placing on the market a simple yet effective device to prevent vibration of tungsten lamps.

As will be seen by the illustration, the device consists of a hollow brass sphere in two parts, the edge of one half fitting loosely into the other half of the sphere. The two parts are held together by a coiled spring of the proper tension, so that when the lamp and globe are in position considerable lateral play is secured, taking up any vibration that may affect the fixture.

New Tungsten Lamp Device

Large Users of Electric Vehicles

THE H B Claflin Company, of New York, wholesale dry goods merchants, already have over twenty electric trucks and wagons, and are constantly adding to this number. They have found this method of transportation economical, and recommend it to those who require wagons for their class of business.—*Electric Vehicle and Central Station.*

Delays and shutdowns incident to accidents in the power plant are eliminated by the use of Edison Service.

Floats for the Hudson-Fulton Celebration

IN the workshops of the Hudson-Fulton Celebration Commission, at 149th Street and Exterior Avenue, in the Bronx, fifty floats have been built and fifty floats are being built by the Hudson-Fulton Celebration Commission for the free entertainment and instruction of the public in connection with the celebration this fall to commemorate the 300th anniversary of the discovery of the Hudson River and the 100th anniversary of the first application of steam to navigation on the same river.

In the immense structure a force of 300 artists, sculptors, papier-mache workers, carpenters, blacksmiths and painters have worked for months, and virtually none except the members of the Commission knew that they were at work. The results of their work, when seen upon the streets, will startle New York and its millions of visitors and evoke applause that will be heard around the world.

Scene in the Model Room. The man on the right is working on what will become a flame of fire

One of the most interesting departments of the Commission's workshop is the modeling room, in which three master sculptors, assisted by a large corps of both men and girls, model in clay and plaster the figures and objects to be used on the floats. The rough skeleton of the figure is first built of lath and wire mesh, and then masses of soft green clay are patted on the skeleton. The sculptors' assistants next mould the mass into some semblance of the design with their hands with wooden paddles and with wire scrapers, and then the sculptor carefully models the features of the face and form of the figure or the exact outline of the object to be produced, so that when finished it is as accurate as the statues in the art galleries. The next step is the taking of a plaster mould of the clay model.

The papier-mache workers then take possession of the cast. Five or six layers of thin, tough paper are pasted over every part of the cast and allowed to dry perfectly. The cast is then split in two by cutting through the layers of paper and the plaster cast is removed, whereupon the papier-mache mould is carefully joined and sewed with fine wire and the place of opening covered with more layers of pasted paper. When finished and dried the papier-mache figure will stand a remarkable amount of rough usage and retains absolutely every line of the original clay model. The papier-mache forms are then painted and are ready to be applied to the floats.

"Legend of Hiawatha" Float (Indian period), in Course of Construction

Water Softening by Electricity

A NEW water-softening process was described by J L Campbell in a recent paper before the American Railway Engineering and Maintenance of Way Association. Aluminum or iron plates were suspended in the water and an electric current passed through. The experiments proved highly successful.—*Electrical Review and Western Electrician.*

New York Central Electric Locomotives

IF a comparison be made between the latest New York Central electric locomotives and the first locomotives, it will be seen that the changes made are all those of apparently minor details, and yet it was necessary to do this in order to obtain entirely satisfactory running conditions, says the *Railroad Age Gazette.* The principal difficulty that was experienced at first was the moving at high speeds on tangents. The efforts of the engineers were first directed toward this end. The substitution of the four-wheeled for the two-wheeled truck and the use of a center plate, offering some frictional resistance to turning, seems to have accomplished this, so that now the machines are said to run as steadily on a tangent at speeds of sixty-five and seventy miles an hour as they do at forty-five miles, at which latter speed there never was any trouble, even with the early locomotives. As to what the lateral action of these locomotives upon the track may be, no information is available, nor is there any in existence. That the stresses so imposed are considered to be of some magnitude is evidenced by two things: First, the maximum speed in the electric zone is limited to forty miles an hour, and second, the condition and construction of the track. Probably upon no other section of railway in the world is the surfacing and maintenance of

Showing the first stage in the construction of a float. A rough outline of the design is securely nailed together over which timbers and wire mesh are placed. This float will represent "The Storming of Stony Point"

Float "Half Moon," Under Construction

the track kept so nearly perfect as it is upon that where these engines are operated; and, as for its strength, it is as strong as human ingenuity can make it and probably the strongest in existence.

That these lateral stresses are rather severe seems evident from the construction of the machine. In the first place, the center of gravity is very low. Each pair of driving wheels, with its motor, weighs about six tons, and the center of gravity of this mass is but twenty-two inches above the rail. Then on the truck there is that heavy cast transom and center plate

Madison Square at Night, Showing Demonstration of Park Lighting for the Hudson-Fulton Celebration that must weigh at least 10,000 pounds, and whose center of gravity is not more than fourteen inches or fifteen inches above the top of the rail. These are the heaviest concentrated masses of the locomotive, and it is evident that when nosing occurs or when the machine is being deflected on the passage of a curve the lateral stress on the rail must be high, especially whenever the speed exceeds that for which the outer rail is elevated. In addition to this, there must be some stress imposed by the gyroscopic action of the rotating parts, regarding which there are wide differences of opinion, but apparently no definite information. It is, therefore, proper that the officials should pursue the safe course that they are now following until it has been learned beyond all peradventure and independently of mathematical calculations just what physical action these engines may have upon the track when running at different speeds over curves of different radii and with a variety of super-elevations for the outer rail.

Hudson-Fulton Electrical Decorations

ONE of the features of the celebration will be the electrical decorations on the public buildings, bridges and arches, also the extensive lighting of the foliage in the various parks of the city.

Fifth Avenue will have parallel lines of festooning from Fourth Street to Fifty-ninth Street at the curb. The lamps for all decorative lighting will be clear glass and of eight candle-power, spaced approximately twelve inches apart on public buildings, arches and monuments, and eighteen inches apart on bridges.

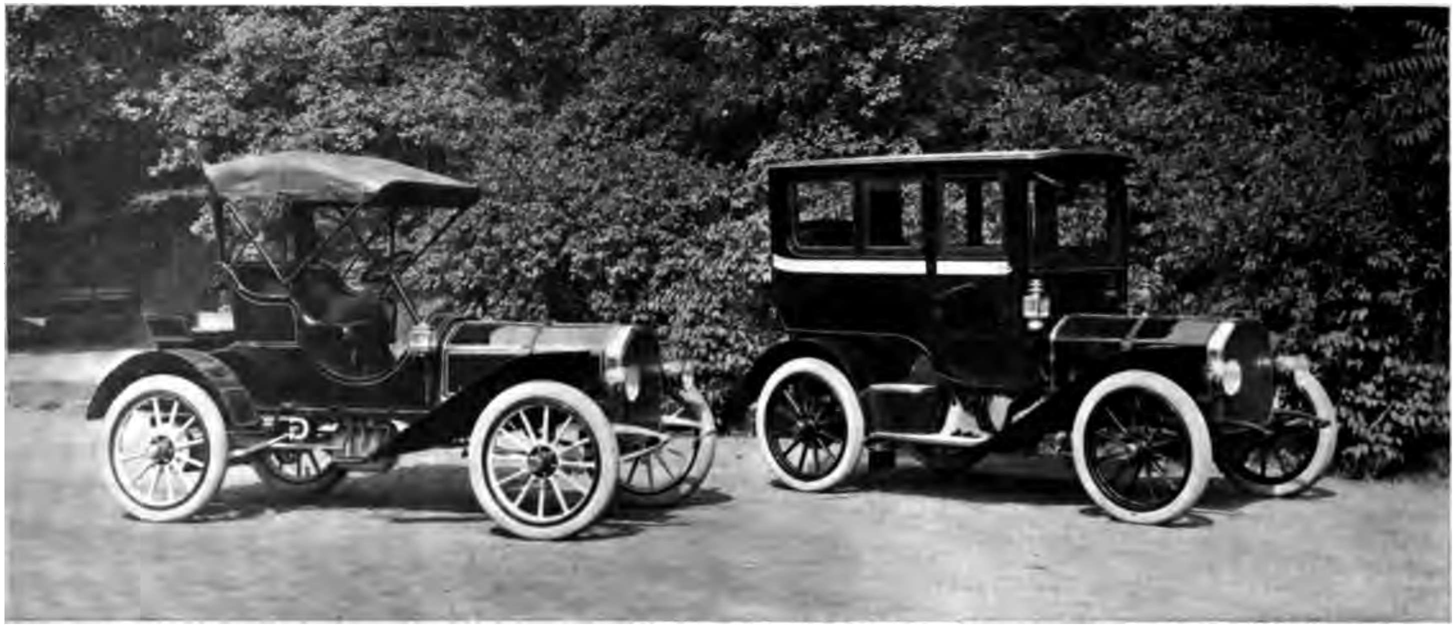
About 500,000 incandescent lights will be used, besides numerous arc and search lights.

The apportionment of lights for the various buildings and bridges is given in the following table:

Building.	Estimated number of Lamps
Queensboro Bridge	14,000
Brooklyn Bridge	13,000
Williamsburgh Bridge	11,000
Manhattan Bridge	11,000
New York City Hall	3,500
Brooklyn Borough Hall	3,600
Queens Borough Hall	1.200
Bronx Borough Hall	2.500
Richmond Borough Hall	2.640
Grant's Tomb	Searchlights
Sailors' and Soldiers' Monument, New York	1,500
Brooklyn Institute of Arts and Sciences	7,200
Sailors' and Soldiers' Monument, Brooklyn	1,500
Water Tower	650
Washington Arch, New York	1,500
Riverside Drive Viaduct	5,062
Manhattan Line of Parade—5th Ave. from 4th to 59th Sts., through to 8th Ave., and up to 110th St.	25.500
Jamaica Town Hall	900
Flushing Town Hall	900
Total number of Incandescent Lamps	107.152

Edison Service is instantly available, day, night, Sundays or holidays.

A few machines may be operated, consuming energy only when in use, thereby eliminating operating expenses in boiler and engine rooms.



At the left is shown a Baker Roadster on Type M Chassis, and at the right-hand side a Baker Special Limousine with inside drive

Baker Electrics

THE illustration on the opposite page shows two popular electric cars made by the Baker Vehicle Company, 1788 Broadway, New York. The larger of the two machines is the special inside drive Limousine body mounted on a type M Roadster Chassis. This car is capable of running sixty miles on one charge of the batteries and a speed of thirty miles an hour can be maintained. Either a touring or landaulet body can be used on the same chassis.

The roadster shown in the cut provides unusual speed when required, with all the practical normal speeds as well. The specifications are as follows:

Wheel Base—95 inches.

Wheel Tread—56 inches.

Wheel Dimension—34 inches.

Tires, Size—34 x 4 inches front and rear.

Tires—Double tube, quick detachable. Palmer Web.

Frame—Armored wood.

Steering Gear—Wheel.

Brakes—Two internal on rear axle, one internal on transmission shaft.

Springs—Semi-elliptic in front and rear.

Batteries—40 cells, 9 P V Exide.

Motor—Series wound, rated at 3½ horse-power, 300 per cent overload capacity.

Controller—Continuous torque system, speed changes without sparking; eleven speeds forward, three speeds reverse; operating lever on steering wheel. Batteries to the sixth speed, inclusive, in parallel, after sixth in series. Ten speeds forward without resistance, from 8 to 30 miles per hour.

Transmission—Planetary gear reduction, shaft and bevel gear drive.

Efficiency—Highest obtainable by use of ball bearings on all revolv-parts.

Mileage Capacity—75 miles per hour.

Painting and Trimming—Body, blue; running gear, yellow; upholstering, leather.

NOTE: The entire space under the seat is available for carrying parcels.

Balloon Control by Wireless

ACCORDING to the New York *Herald*, Mark O Anthony, an electrical engineer, last week succeeded in sending a small dirigible balloon, controlled by wireless, out over the ocean from Sandy Hook, a distance of one mile and a quarter, directing its movements by manipulation of a keyboard on the beach. The inventor refused to give any particulars of his experiment beyond stating that the balloon unreeled about 7,000 feet of cord, which was attached in order to haul it back in case anything happened to the mechanism.

Fire hazards are reduced by the elimination of the power plant and high-pressure steam boilers.

The Third Annual Electrical Show

MADISON SQUARE GARDEN

THE coming Electrical Show, October 11th to 21st, will represent the highest attainment of the illuminating engineer's and decorator's skill. More than seventy-five thousand incandescent lamps will illuminate the Garden. An entirely new scheme of decorating and lighting has been devised which will give the exhibition floor, and in fact the whole interior, not only a uniform but an extremely harmonious and beautiful appearance.

Especial attention is being given to the industrial exhibits, which will represent manufacturing processes of all kinds in actual operation, and show the great advantages of electric motor drive, as every machine will be driven by its own motor.

There will also be elaborate exhibits of modern electrical appliances in everyday use, and the Show as a whole will be of such scope that there will be much of interest to the layman, the professional man, the manufacturer, and also the ladies, who will find everything that goes to make up the modern House Electrical.

THE EDISON MONTHLY

VOLUME II NUMBER 4

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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
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The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

When considering the various features of automobiles for pleasure, or even business, reference is seldom made to the question of cranking. With the electric vehicle no such operation is known. The mere movement of a hand- or foot-switch, occasioning no more resistance than can be overcome by slight finger pressure, is all that is required to start the car in motion.

Cranking a gasoline car requires much strength, and some skill. With some cars the strength of a strong man is needed. In addition there is the "kick" danger, which has caused many serious breaks and bruises.

* * *

Those who have tried electric vehicles in the past, and found them wanting either in design, construction, or battery, might well be astonished with recent improvements. Models are now available conforming with the best models of the gasoline cars. Storage batteries are capable of operating 100 miles on one charge. The speed approaches forty miles an hour. Cars can be driven over the steepest Riverdale hills, at more than twenty miles an hour.

* * *

Electric vehicles travel noiselessly, stop and start without jar, and emit no smoke or noxious gases. It is said that the gasoline busses of London are having a serious effect on the atmosphere. Our own Fifth Avenue is becoming much the same, and passage through it on any afternoon is increasingly undesirable.

* * *

The low cost of the electric vehicle is another excellent feature. It is claimed that the lighter cars travel one hundred miles with a consumption of thirteen kilowatt hours. At eight cents a kilowatt hour this is one dollar and four cents for one hundred miles, or slightly more than one cent a mile, and at six cents, the New York price to any garage whose monthly bills reach fifty dollars, seventy-eight cents becomes the cost of one hundred miles of travel.

We believe that with gasoline, a like distance cannot be accomplished with less than ten gallons, which at fourteen cents would cost one dollar and forty cents, or at eighteen cents, the price more usually paid, one dollar and eighty cents.

The Third Annual New York Electrical Show offers an unusual opportunity to create a large public interest in electric automobiles. Several of the leading manufacturers, including the General Vehicle Company and the Lansden Company, have taken space for this year. While little space remains on the main floor, it is hoped that the other manufacturers will seize this occasion to interest the New York public.

◆

Owing to arrangements concluded from year to year with the Automobile Show, it is not possible to exhibit complete automobiles at the Electrical Show. Chassis, bodies, motors, controlling and other parts can be exhibited in such a manner that the vehicle itself can be made to stand out most prominently, and complete running vehicles can be placed on the streets surrounding the Garden for practical demonstration.

◆

The Automobile Show gives little space to electric vehicles. They are crowded off to one side, which in itself gives them a secondary position. They receive little attention on the part of the press, and the trend, therefore, is to dwarf this machine in public estimation.

On the other hand, the effort in the Electrical Show will be to place these machines in a prominent position, emphasizing their many advantages, thus standing out to favorably impress the public toward what is undoubtedly the most convenient, pleasing and cheapest means of transit in localities where the daily range of travel does not exceed seventy or one hundred miles.

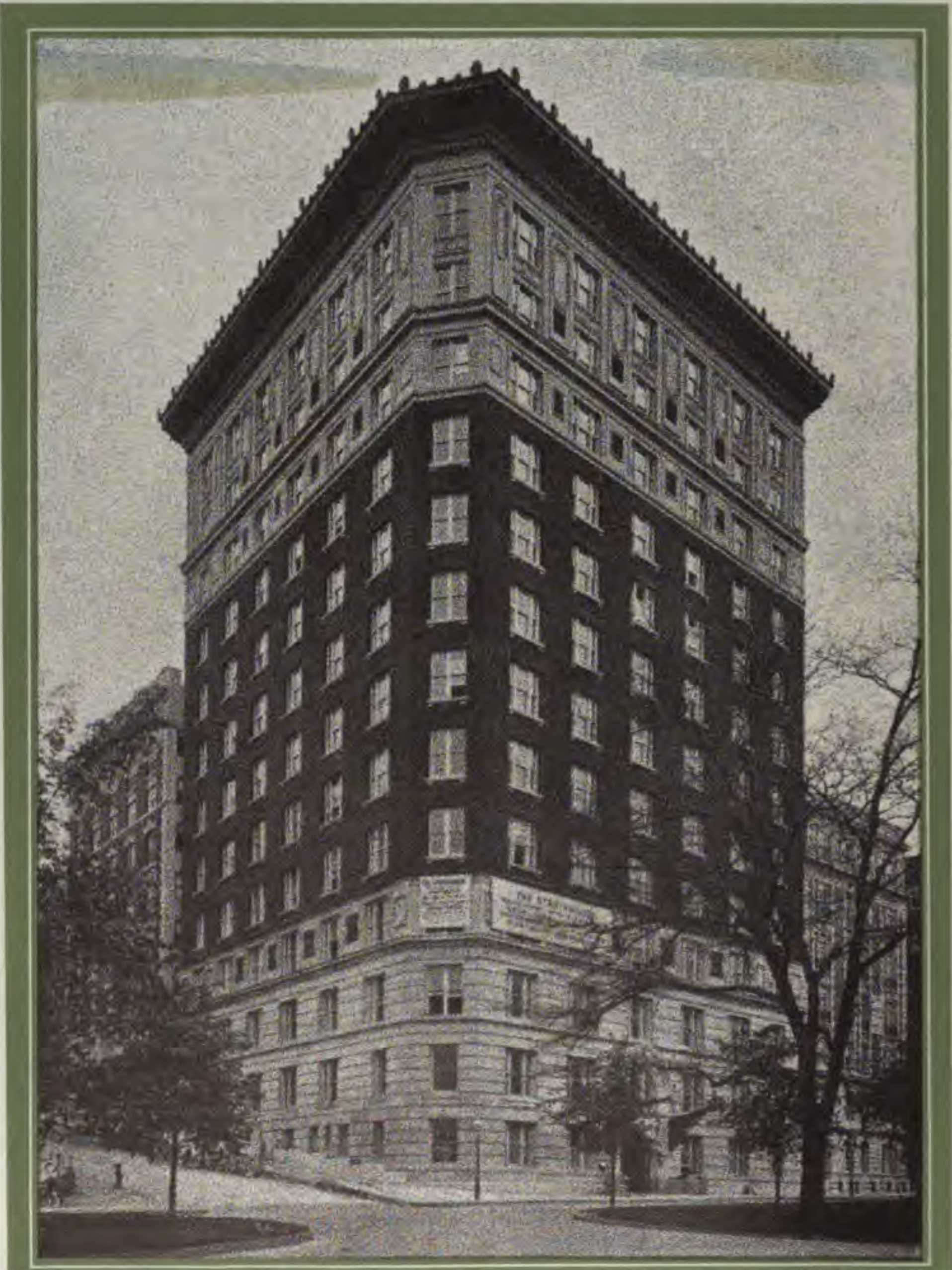
◆

The effect of electric sign advertising may be noted and its value estimated by anyone traveling on the North River ferryboats during the early evening hours. Nowhere in the world is a picture of such beauty and intense interest to be found as that presented by the Manhattan sky line as the massive buildings, towering one above the other, in the increasing twilight fade into a charming and artistic grouping.

As the boats proceed up the river, electric signs conveying various messages blaze out along the Jersey shore. Some are stationary, some disappear to again reappear, letter by letter, others flash across the water different messages concerning the delights and advantages of travel, and the great Colgate clock, with its moving pendulum of light accurately tells the time.

As these signs come into view, one after another, the evident interest of the passengers changes from the beauties of the Manhattan shore to the signs of New Jersey. Can anyone question rightly the efficiency of such advertising? Can anyone doubt the value of an interest so secured, or the lasting effect of such advertising, upon the thought and memory of those passing to whom it is intended to convey these various messages.

Edison Service in Large Buildings



The Strathmore Apartment Building, 410-411 Riverside Drive. Edison Service is used for 3,000 lights and 350 horse-power in motors. Winthrop Realty Company are the owners

New Electric Ferry

RECENTLY at Marseilles, France, a new electrically operated ferry was constructed, says the *Technical World Magazine*. Similar aerial ferries or transporting bridges have been constructed in the United States, at Balboa, Spain, and at Rouen, Rochefory, and Mantis, France.

The traveling car which moves between the two landings, Fort St. Nicholas on the southern side of Port Vieux and Fort St. Jean on the northern side, is supported by cables from a traveling trolley running on rails on the cantilever bridge. This trolley supports a car or platform. The car is used for transporting passengers, freight and vehicles between the two landings.

Electric power is utilized for moving the car. The ends of the cantilever bridge are anchored by means of vertical cables at each of the landings, and observation buildings are provided on the cantilever beyond the supporting tower, while a series of winding steps are arranged on each tower so that persons may mount to the level of the bridge and cross on two walks from ten to twelve feet in width.

The charge for crossing on this electric aerial ferry is five centimes, or about one cent for each foot passenger; the same for a sheep, lamb or goat, and ten centimes or two cents for a horse, mule or cow, while the vehicles are charged for at the rate of fifty centimes, or ten cents, for an automobile, and from five centimes or [illegible] cents, for other vehicles, accord- g to the weight; merchandise being arged for also in proportion to the weight.

This aerial electrical ferry has been in operation now for some time, and is said to have given excellent satisfaction, covering the distance with considerable speed and without interfering with the traffic of the merchant vessels in the slightest degree.

A New Compass

THE German Admiralty, it is announced, has decided to abolish all magnetic compasses on board German warships and replace them with the gyroscope compass, an invention of Dr Anschutz-Kampfe, of Kiel.

The gyroscope compass is based upon the familiar principle that a rapidly rotating body tends to keep in the same plane, a principle which is already applied in the automatic steering apparatus of torpedoes. The compass consists of a wheel weighing about nine pounds, mounted with the usual compass card and working, in order to diminish friction, in a holder of quicksilver. A current of 150 watts is sufficient to give this wheel or top the speed of 21,000 turns a minute.

Two hours after being started the instrument is set in the direction of the mathematical meridian instead of toward the magnetic pole, and it keeps its position unchanged. It is not deflected as is the ordinary compass by neighboring iron and steel. It is unsusceptible to vibration and rolling and under all possible conditions of weather keeps obstinately true to the poles. The slight deviations resulting in different latitudes are all exactly calculable and therefore cause no trouble.

Private Plants Abandoned in Favor of Edison Service

The Washington Apartments, 2034 Seventh Avenue. A private plant has recently been abandoned in this building and Edison Service substituted

New Invention an Aid to Study of Surgery

PHYSICIANS invited to witness, by means of a new invention called the projectoscope, an operation recently in St Gregory's Hospital expressed the opinion that it would revolutionize the study of surgery. The projectoscope enables an unlimited number of persons to view an operation without being in the room where the surgeons are at work. Three powerful electric lights are stationed around the operating table and their rays, filtered through water to eliminate heat, are focused on the patient. Arranged directly above the table is a mirror which reflects what is taking place into a second mirror, which in turn reflects into a powerful lens. The lens throws the picture on a glass screen outside the operating room where the witnesses are assembled.

With Edison Service a few machines may be operated, consuming energy only when in use, thereby eliminating operating expenses in boiler and engine rooms.

Manhattan Screw and Stamping Works, Corner West End Avenue and Sixty-seventh Street. Edison Service has recently been contracted for and a private plant abandoned

Moving Pictures

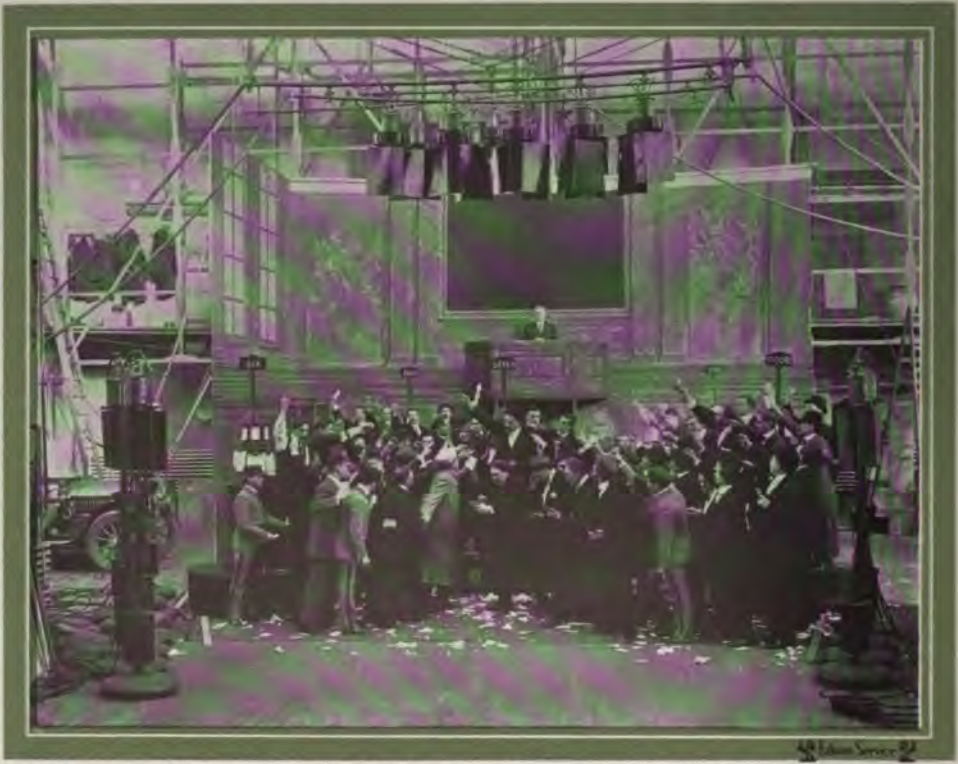
THE moving-picture business has grown to such proportions that the production of films is now a very large business in itself. Competent corps of professional actors and actresses are constantly employed by leading film manufacturers to enact the various sketches in front of the camera. A large number of the scenes are laid out of doors, and often entail hardship and danger.

Two of the accompanying illustrations show the performers at work in the Edison Studio, Bedford Park, Bronx, New York, while the photographer was making the negatives for films.

Here will be found scenery, property and lighting arrangements similar to a regular theatre.

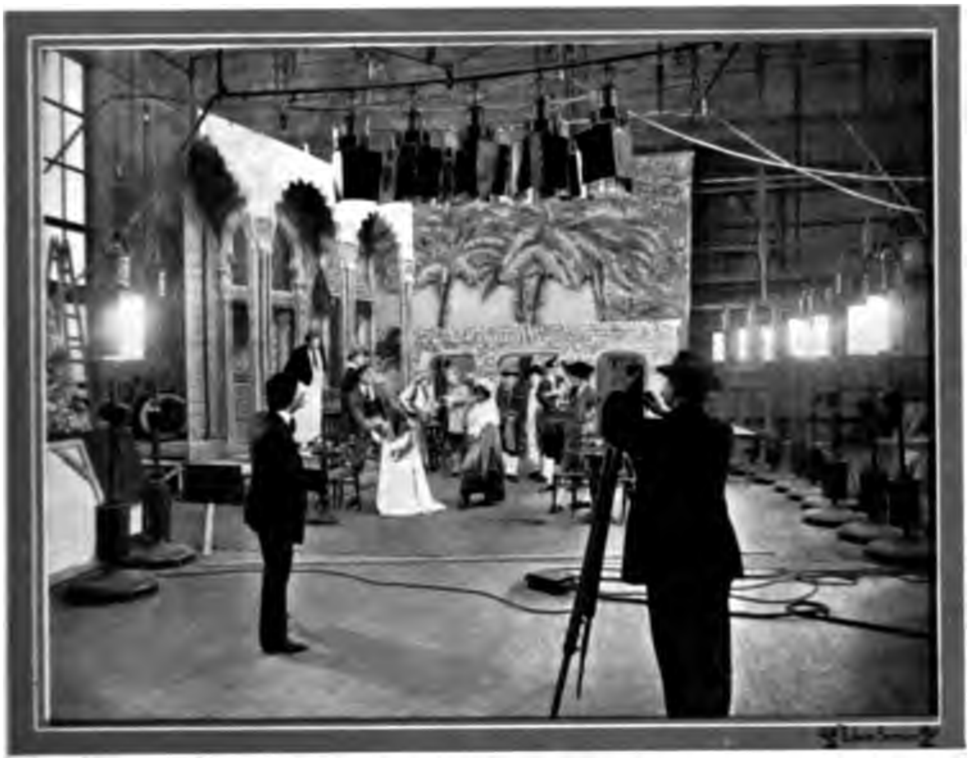
The first moving-picture machine, known as the kinetoscope, was devised by Mr Edison in 1887.

It was a ponderous affair, costing several hundred dollars, and, briefly described, consisted of a box containing the mechanism, with a peephole at the top, through which the pictures were viewed. Owing to mechanical limitations only one person at a time could enjoy the pictures. It was Mr Edison's original idea to devise an instrument which would do for the eye what the


Company of Actors in the Edison Studio Before the Camera in the Stock Exchange Scene

phonograph does for the ear, and Edison projecting kinetoscopes, as now perfected, embody the successful accomplishment of that idea.

Edison projecting kinetoscopes represent the highest development of the art of photography, bringing before the eye life-size reproductions of life motion with all the accompanying effects of light, shade and expression. By means of a transparent picture film, an intense light and properly arranged lenses, the pictures are projected upon a screen one after another in such rapid succession that the eye cannot perceive any intermission between them, and a perfect illusion of continuous action is thus produced. Edison projecting kinetoscopes enlarge the scenes and figures to full life-size and illuminate them brilliantly in the most simple and perfect manner.



A Bit of Drama in the Edison Studio. The photographer may be seen in the foreground

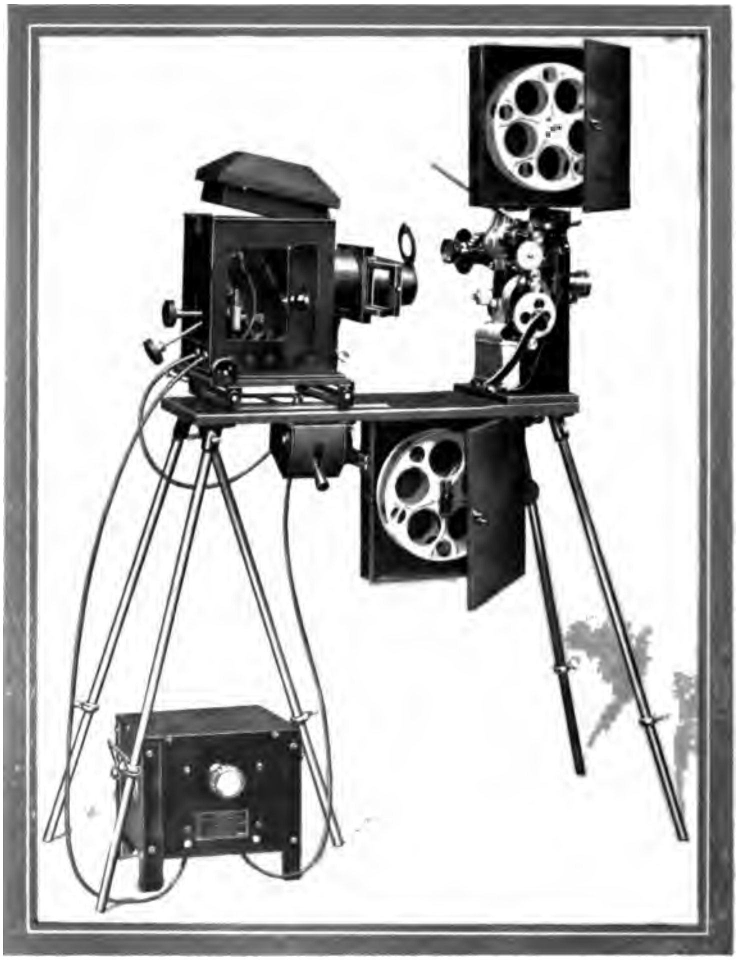
Night Lighting of Shops by Merchants

BROADWAY merchants have so long enjoyed the almost exclusive rewards of brilliantly lighted streets and windows and the patronage of transient night traffic that the comparative darkness of Fifth Avenue has been accentuated by the brilliancy of its near neighbor.

Plans recently projected by various associations of Fifth Avenue merchants and property owners include the lighting of all stores and shops after darkness, and the supremacy of Broadway as an evening promenade is threatened as a result of this decision.

A Unique Tungsten Lamp Fixture Replaces Arc Lamps

THE following interesting installation is worthy of record inasmuch as it marks a further advance in the supremacy of the tungsten lamp and tungsten lamp fixtures over enclosed carbon arc lamps and gives a good example of the usefulness of correct illuminating engineering.



Edison Projecting Kinetoscope Ready for a Film. The operator turns the crank seen at the right-hand side

The wholesale flower and feather house of Berlinger, Brown&Meyer has discarded its entire equipment of about thirty enclosed arc lamps and replaced it by one hundred and twenty sixty-watt tungsten lamps, that way reducing their current consumption to less than half without any sacrifice as to the efficiency, effectiveness and quality of the installation. Especially interesting and remarkable is the illumination of the main store, where always four sixty-watt tungsten lamps are combined into one specially designed fixture of great attraction and efficiency. Seventeen of these fixtures are installed, each taking the place of one of the discarded arc lamps; an illustration thereof is given in the accompanying picture. As to appearance the fixtures remind one of an arc lamp, in fact, the original stems of the arc lamp were adhered to, only the light bearing body being renewed. The latter consists of a combination of specially designed mirror reflectors which distribute the light of the four tungsten lamps in a particularly specified manner, practically the total light-giving power of the lamps being used for downward illumination. In order to avoid the glare from the brilliant filament and from the highly illuminated reflector panels, a special enclosing globe or bowl is employed which, though absorbing a good deal, about thirty per cent of the very strong light of the fixture, not only improves the appearance considerably, but is also imperative from the hygienic point of view. Still, after all, the goods displayed in the store are more brightly illuminated than ever before, which was demonstrated beyond doubt by frequent visual experiments; moreover, the uniformity, size, restfulness and appearance of the whole is far superior.

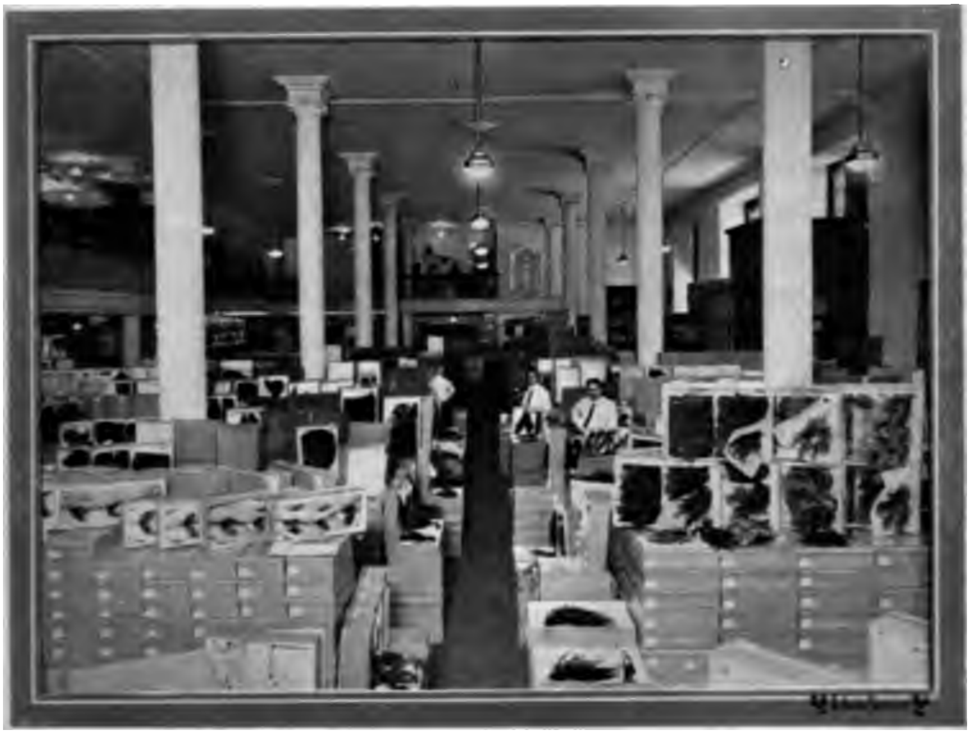
The illumination plans and fixtures were designed by Alfred A Wohlauer, Consulting Engineer, 546 Fifth Avenue, the fixtures manufactured by I P Frink, 551 Pearl Street. The wiring contractors were Mautner & Freund, 5 East Thirteenth Street.

Rittenhouse Socket Pull

THIS little device will be found exceedingly convenient for turning on or off single lamps. It is easily attached to the ordinary key socket and contains a rachet, so that only one pull is necessary to light or extinguish the lamp.

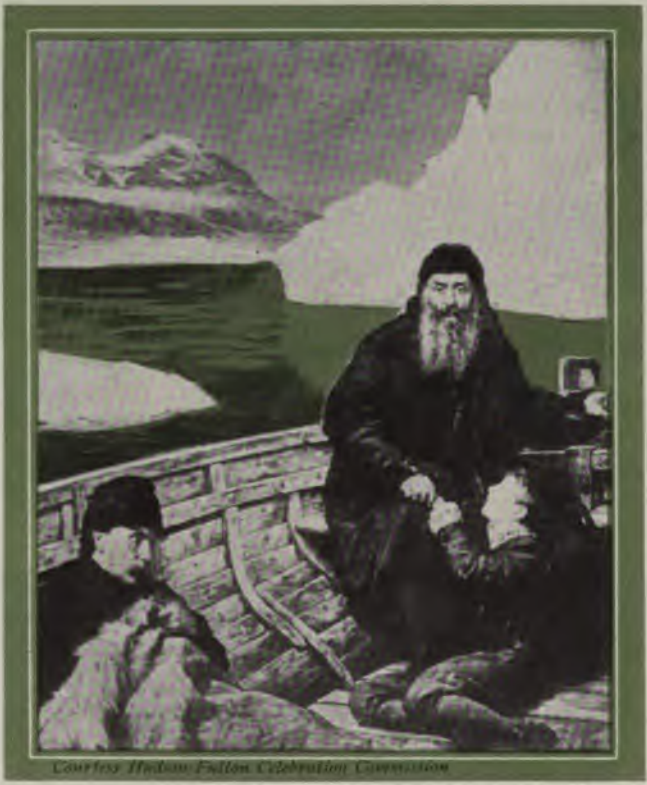
Mr William T McDowell is the sales agent, Hudson Terminal Buildings, New York.

Use Edison Service for light, heat and power.



Tungsten Lighting Installation in the Wholesale Flower and Feather House of Messrs Berlinger, Brown & Meyer, New York City. Plans and fixtures designed by Mr Alfred A Wohlauer, consulting engineer, 546 Fifth Avenue. The fixtures were manufactured by I P Frink, 551 Pearl Street

Henry Hudson


Courtesy Hudson-Fulton Celebration Commission

Last Days of Henry Hudson, by Sir John Collier. Original in Tate Gallery, London. On his last voyage (in the Arctic) Hudson was set adrift in a small boat by his mutinous crew, and nothing was later heard of him. His vessel returned to England and the members of his crew were imprisoned for a short time and then released

IN few men are more rare combinations of talents required than in discoverers and explorers of new countries and seas. Invincible courage, patience and fortitude under suffering, daring enterprise tempered by prudence, promptness and decision united with calm reflection, are some of the more prominent traits in the character of this class of men.

Among those who were peculiarly gifted in these attributes one is the subject of this article, Henry Hudson, the navigator. Of the early history of Hudson little is known. He was a native of England, a scientific and professed navigator, and ranked with the most distinguished seamen of his age.

We are not informed in what way he acquired his practical skill as a navigator; but, as he lived in an age immediately succeeding the greatest discoveries, and while these discoveries were occupying with absorbing interest the mind of the whole civilized world, it is not improbable that his nautical education may have been received from some one of the great navigators who followed immediately in the footsteps of Columbus.

Hudson made two voyages to the Western Hemisphere before the one on which he discovered the river that bears his name, the first in 1607, to discover a passage by the North Pole to Japan and China, and the second in 1608, when he sailed from London with the design of seeking a northeastern passage to India. These voyages were undertaken at the instigation of certain merchants of London and were both unavailing.

The London Company had become discouraged by two unsuccessful attempts to find a northern passage to China, and Hudson, whose mind was completely bent upon making the discovery, sought employment from the Dutch East India Company. The Company was generally in favor of accepting the offer of his services. They accordingly gave him the command of a small vessel, the "Half Moon," manned with a crew of twenty men.

Courtesy Hudson-Fulton Celebration Commission

Robert Fulton, by Benjamin West. Fulton as a youth went to Europe to study art. West was his teacher. This portrait is said to represent West's best style

Hudson, on his third voyage, sailed from Amsterdam the 25th of March, 1609. After many adventures he sighted the coast of North America July 12th, and a few days later sailed into what is now known as Penobscot Bay, on the coast of Maine.

The voyage was continued up and down the coast until September 11th, when the "Half Moon" sailed through the Narrows and anchored in New York Bay. Explorations and soundings were made up the river to a point about where the city of Albany now stands.

Hudson had now explored the bay of New York and the noble stream which pours into it from the north. For his employers he had secured possessions which would beyond measure reward them for the expense they had incurred in fitting out the expedition. For himself he had gained a name that was destined to live in the gratitude of a great nation through unnumbered generations. Happy in the result of his labors and in the brilliant promise they afforded, he spread his sails again for the Old World on the 4th of October, and in a little more than a month arrived safely in Dartmouth, England. Hudson's fourth voyage proved to be his last in making the attempt to discover a northwest passage. This voyage took him through Hudson Strait into the bay also bearing his name. The voyage was disastrous, as the crew, in mutiny, put Hudson, his son and seven companions into a shallop and set them adrift in a sea of ice and snow. No tidings of Hudson nor his companions were ever received, and Hudson Bay, without doubt, became his grave.

With the electric vehicle there is no reason for a chauffeur. The chances of any part becoming deranged are exceedingly slight. A blown fuse on any circuit of the car can be replaced by a child.

Robert Fulton

Copyright by the Hudson-Fulton Celebration Commission

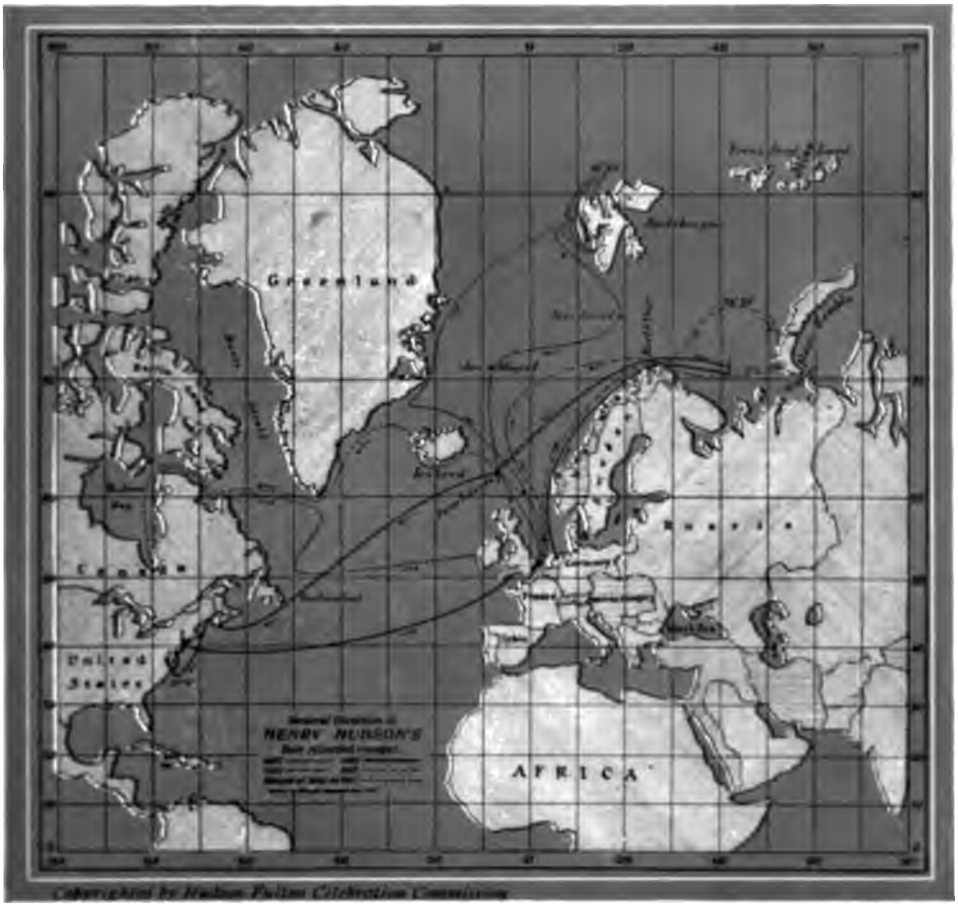
The "Half Moon." An exact replica of the "Half Moon," in which Henry Hudson sailed under the auspices of the Dutch East India Company when he discovered the Hudson River, has been built by patriotic citizens of Holland (at Amsterdam) and will be presented by them to the Hudson-Fulton Celebration Commission. It will play an important part in the celebration—September 25th-October 9th, 1909—and will make the trip up the Hudson River from New York to Troy under the escort of an international fleet of war vessels

ROBERT FULTON, artist, engineer, mechanic, inventor, prophet and statesman, was a genius of the first magnitude. His later fame is, as in so many such cases, based rather upon what became most familiar in his career than upon the real capacity and talent of the man. He was a talented artist and an eminent mechanic, but the "Clermont"—his first steamboat in America—did not illustrate his genius in that direction.

The grand achievement of Fulton was the direction of an enterprise which resulted in the production by Watt and his partners in Great Britain, and by Brown in New York, of a steamboat that could give commercial returns in actual daily operation, and the institution of a "line" of boats between New York and Albany, the success of which insured the introduction and continued operation of steam vessels with all the marvelous consequences of that great event. Fulton was born at Little Britain, Lancaster County, Pa, in 1765.

The "Clermont," as Fulton called this first boat, was begun in the winter of 1806-7 and launched in the spring; the machinery was at once put on board, and in August, 1807, the craft was ready for the trial trip. The boat was promptly started on her proposed trip to Albany and made the run with perfect success. The "Clermont" was very unlike any of her successors and very dissimilar from the shape in which she appeared a few months afterward. The engine was open to view, and from the engine aft a house like that of a canalboat was raised to cover the boiler and the apartment for officers. There were no wheel guards. The rudder was of the shape used in sailing vessels and moved by a tiller. The boiler was of the form then used in Watt's engines and was set in masonry. The condenser was of the size used habitually in land engines and stood, as was the practice in them, in a large cold-water cistern. The weight of the masonry and the great capacity of the cold-water cistern diminished very materially the buoyancy of the vessel. The rudder had so little power that she could hardly be managed. The skippers of the river craft, who at once saw that their business was doomed, took advantage of the unwieldiness of the vessel to run foul of her as soon as they thought they had the law on their side. Thus, in several instances, the steamer reached one or the other terminus of the route with but a single wheel. The voyage of the "Clermont" to Albany was attended with some ludicrous incidents. It was described as a monster moving on the waters, defying wind and tide and breathing flames and smoke. This boat used dry pine wood for fuel, and the flames rose to a considerable distance above the smoke pipe and mingled smoke and sparks rose high in the air.

The "Clermont" was 150 feet long and seventeen feet eleven inches wide, had a depth of hold of seven feet and drew two feet of water. The hull below the deck had a wedge-shaped bow and stern, cut sharp to an angle of sixty degrees.



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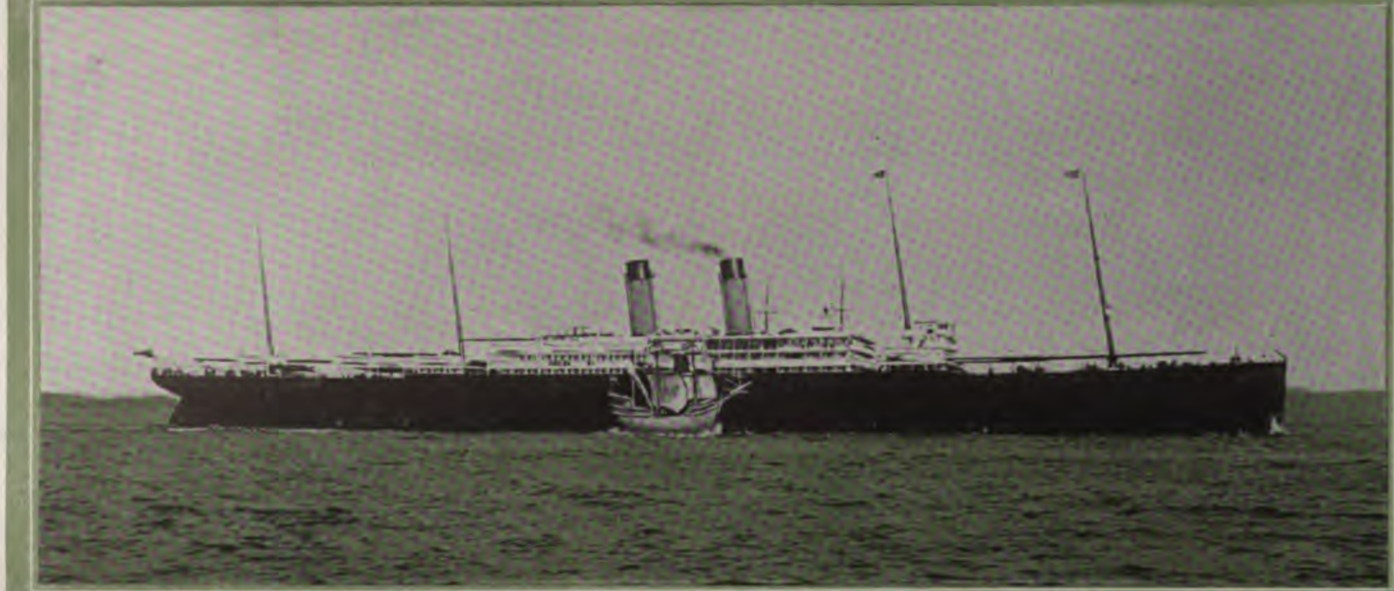
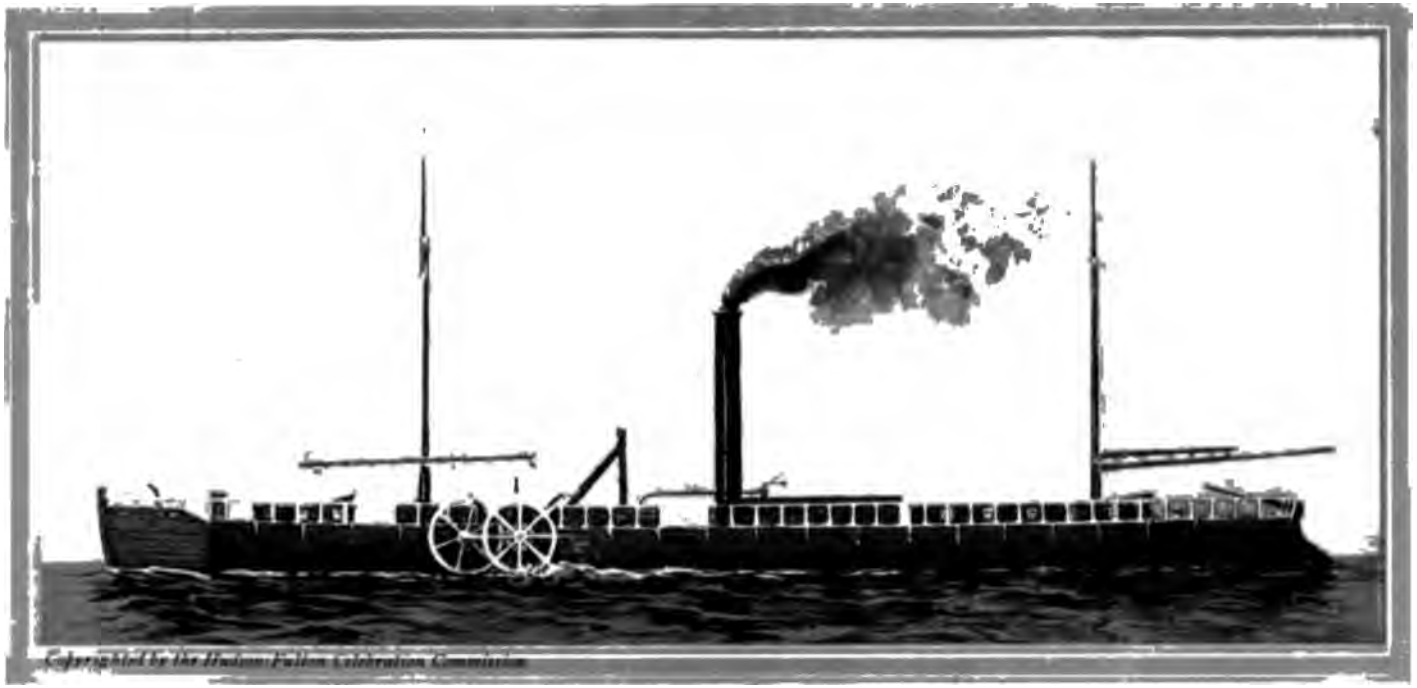
Map Showing General Direction of Henry Hudson's Four Recorded Voyages



Courtesy Hudson-Fulton Celebration Commission

Comparison of the "Celtic" and the 'Half Moon": "Celtic"—Length, 700 feet; beam, 75 feet; depth, 49 feet; displacement, 37,870 tons; tonnage, 20,904 tons; horse-power, 13,000. "Half Moon"—Length, 74.54 feet; beam, 16.94 feet; depth, 10.08 feet; tonnage, 80 tons. The "Celtic" crosses the Atlantic in little less than eight days; the "Half Moon" crossed the Atlantic in fifty-nine days



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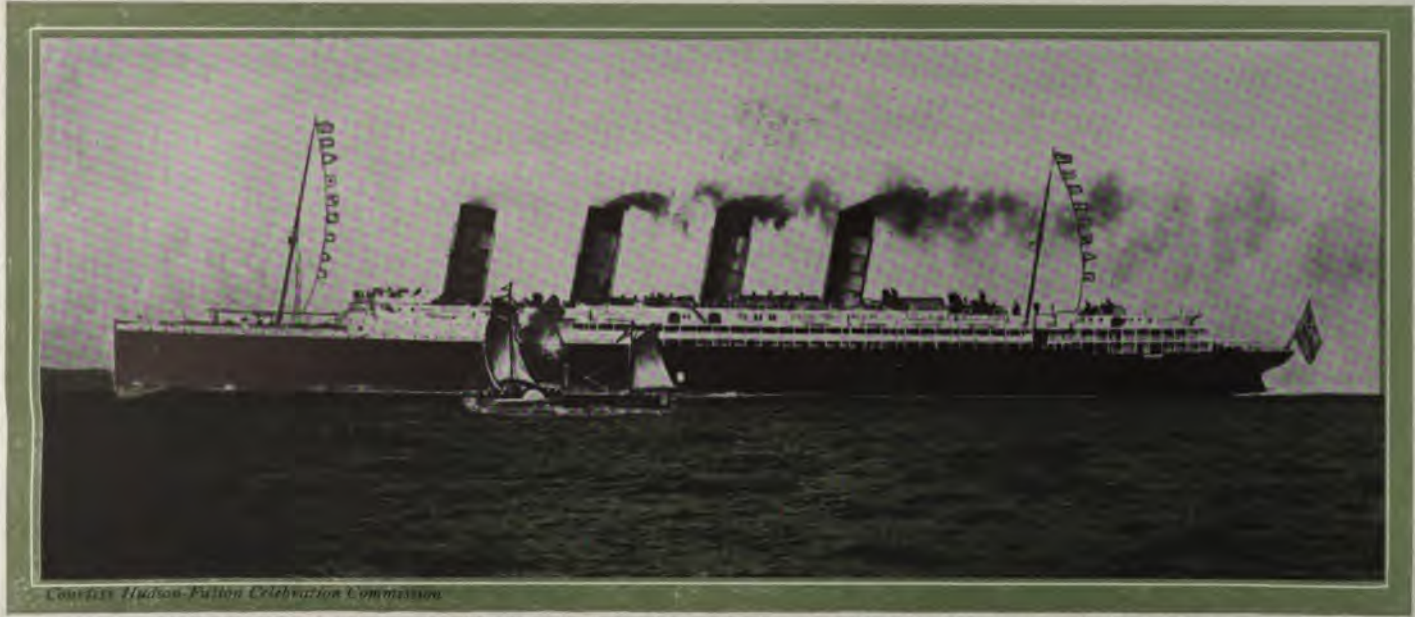
An exact replica of the "Clermont, Robert Fulton's Hudson River steamboat, is being built by the Hudson-Fulton Celebration Commission and will take a prominent part in the celebration September 25th-October 9th, 1909. It will be escorted up the Hudson with the "Half Moon by an international fleet of war vessels under its own steam, propelled by an exact reproduction of the machine used on its first trip up the Hudson



Courtesy Hudson-Fulton Celebration Commission

Comparison of "Lusitania" and "Clermont": "Lusitania"—790 feet long, 80 feet beam, 60.06 feet depth, 45,000 tons displacement tonnage 32,500 tons, 70,000 horse-power. "Clermont"—Length, 150 feet; 13 feet beam, 7 feet depth. The "Lusitania" has established a record from New York to Queenstown (2,800 miles) of four days and fifteen hours. The "Clermont," on her maiden trip up the Hudson from New York to Albany (130 miles), made the distance in thirty-two hours at an average speed of about five miles an hour

The "Half Moon"

THE people of Holland, under royal auspices, have built a reproduction of Hudson's ship, the "Half Moon," to be presented to the Commission as companion to the facsimile of Fulton's historic steamboat, the "Clermont," built here. The "Half Moon" will be manned with a crew in the old seventeenth century costumes. Lieut-Commander W Lam, of H M S "Utrecht," will impersonate Henry Hudson as skipper of the "Half Moon," and Lieut De Meester will act as his mate. The double of Robert Fulton will be at his post on the "Clermont" as large as life. The "Clermont" will be decorated with historical panels.

Program of Hudson-Fulton Celebration

FOR the opening ceremonies on Saturday, the 25th, the "Clermont" and "Half Moon" will be anchored off Bay Ridge during the morning, preparatory to their official reception off One Hundred and Tenth Street and Riverside Drive. The special escort of these vessels will consist of submarines, torpedo boats, vessels of the naval militia and motor boats. A fleet of merchant steamers, yachts and other pleasure craft will form near Governor's Island. The smaller fleet, escorting the replicas of the "Half Moon" and the "Clermont," will pass the larger fleet in formation, be appropriately saluted and proceed up the Hudson River, followed by the larger fleet to the place of official reception, where a large fleet of foreign and American war vessels will be anchored off the official landing place, where the officers and members of the Hudson-Fulton Celebration Commission and its official reception committee will be in waiting. The plans for the decoration of this pier and its approaches to Riverside Drive are being worked out by distinguished architects, and the ceremonies incident to the turning over of the two vessels to the Commission will, it is hoped, be equal to the occasion, surroundings and the dignity of the city.

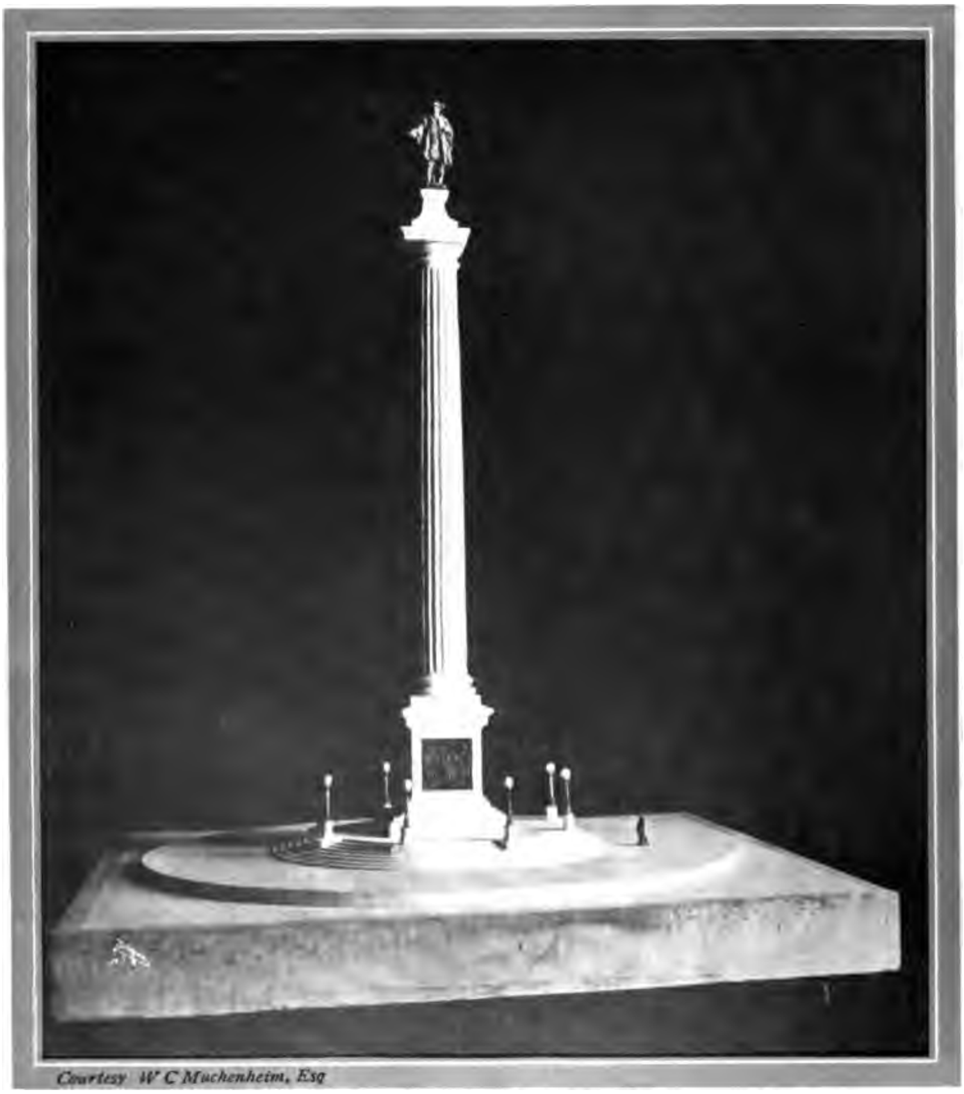
After the "Clermont" and "Half Moon" have received further salutes ceremonies will occur, and the merchant marine fleet will go back to its piers, returning to its position off Riverside Drive in time to witness the grand illumination, searchlights from men-of-war and displays of fireworks, which it is proposed to have on a magnificent scale. The surroundings and backgrounds of the Palisades and the general beauty of the river and situation ought to make this, the initial feature of the week, one of the greatest ever witnessed in New York.

On Sunday, the 26th, all public ceremonies connected with the celebration will be suspended.

Monday, the 27th, will be marked by the opening of exhibits of paintings, prints, books, models and relics by the Metropolitan Museum of Art, the American Museum of Natural History, the Hispanic Museum, the American Numismatic Society, the New York Public Library, the New York Historical Society, the New York Genealogical and Biographical Society, the American Geographical Society, Webb's School for Shipbuilders, the New York Yacht Club and similar institutions throughout the State. The exhibitions at the Metropolitan Museum of Art and the

American Museum of Natural History promise to be the most remarkable of the kind ever held in this country and will probably extend over a period of several months. Music festivals will be held in the evening in each of the five boroughs of the city.

On Tuesday, the 28th, will occur the aforementioned historical parade in the city of New York, participated in by all nationalities. The procession, as already described, will be composed of floats and moving tableaux, representing the principal events in the history of the aboriginal Dutch, English, Revolutionary and American periods, and will be very beautiful and instructive.

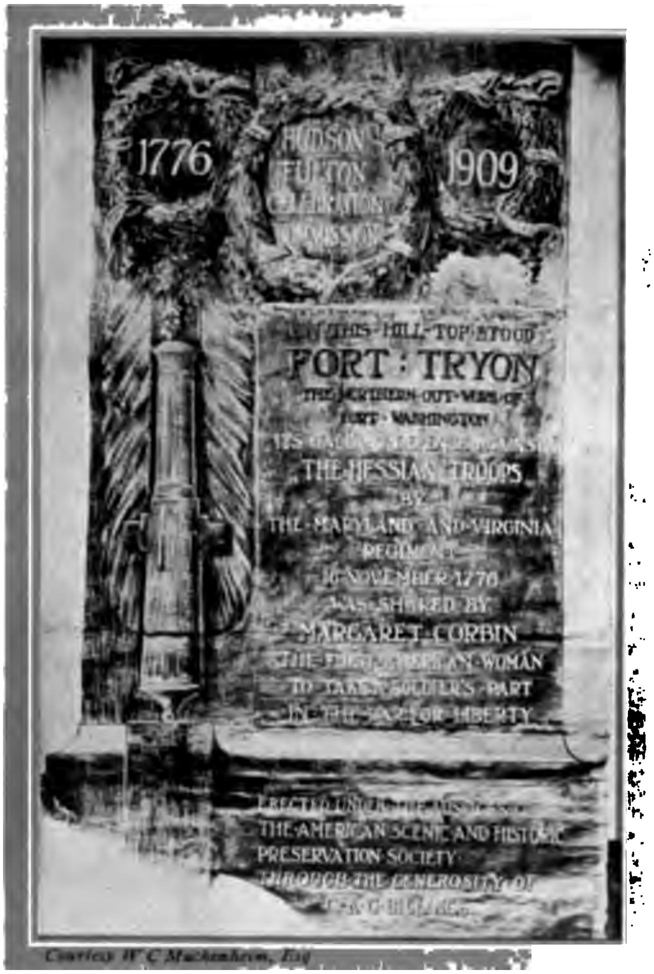


Courtesy W C Muchenheim, Esq

Monument to be erected as a Memorial to Henry Hudson, Discoverer of the Hudson River, on the hill on the north side of the Spuyten Duyvil Creek. It is designed by Karl Bitter, with a tablet designed by Shrady, will cost about $100,000, and will be paid for by popular subscription. It will be dedicated during the Hudson-Fulton Celebration, September 25th-October 9th, as part of the official program

In the evening the official literary exercises will be held in the Metropolitan Opera House, the great hall of the City College, Carnegie Hall and the Opera House of the Brooklyn Academy of Music, at which orations will be delivered by men of national reputation.

Wednesday, the 29th, will be essentially the "educational" day of the celebration, participated in by universities, colleges, schools, museums and historical and patriotic societies throughout the State. It will be devoted to the dedication of parks and other permanent memorials. Commemorative exercises and tree lectures, under the auspices of the Board of Education, will be features of the New York City observance.



Courtesy W C Muschenheim, Esq

Bronze Tablet to be erected on the site of old Fort Tryon under the auspices of the American Scenic and Historic Preservation Society, through the generosity of Mr C K G Billings It will be one of the most important permanent memorials of the Hudson-Fulton Celebration, and will be unveiled as one of the features of the official program of the celebration

Thursday, the 30th, will be given up to the military parade, and Friday, October 1st, to the naval parade. The "Half Moon" and the "Clermont," with escorting fleets, will probably sail up the river as far as Newburgh. It is planned on this day to repeat in Brooklyn the street historical parade of the preceding Tuesday in Manhattan.

Saturday, October 2d, is designed for a general carnival day in New York City, culminating in the evening in the wondrous illuminated carnival parade, for which such strenuous preparations are being made. This feature, with its moving allegorical tableaux, participated in by the German societies of the city, will, it is believed, excel in beauty and interest the most famous carnivals of Europe.

Brilliancy will be added to the general spectacle by the illumination of the fleet and public and private buildings and a pyrotechnic display. Displays of fireworks at various points, notably on the great bridges, as in the fêtes of the 14th of July in Paris, are in contemplation.

At 9 P M it is designed to have a chain of signal fires from mountain tops and other eligible points along the whole river lighted simultaneously. An arrangement has been made with the Pain Manufacturing Company, as official illuminators, by which local communities can contract for these fires at reasonable and uniform rates.

Beginning Sunday, October 3d, it is planned to devote the week to celebrations in the communities along the Hudson north of New York City. This will be somewhat in the nature of an Old Home Week. The events previously outlined will draw many residents of the State to the city of New York and will prevent as full a participation in local celebrations as might otherwise be possible; whereas, in the week following, not only will the citizens of the communities outside of the metropolis be at home, but former residents of those communities will also be freer to make pilgrimages to their old homes, renew old ties and participate in local exercises.

Gen Stewart L Woodford, President Hudson-Fulton Celebration Commission

Herman Ridder, Esq, Presiding Vice-President Hudson-Fulton Celebration Commission

Yonkers, Tarrytown, Nyack, Haverstraw, Peekskill, Newburgh, Poughkeepsie, Kingston, Catskill, Hudson, Albany, Troy and other historic towns along the Hudson will have their local doings and celebrations in a way that will go down in history.

The Airship Flight

THE New York *World* has offered a prize of $10,000 for the aeronaut or aviator who, with a mechanically propelled air-ship, shall sail up the Hudson River over the course from New York to Albany traversed by Fulton's "Clermont" in 1807. This competition, which will be conducted by the Aero Club of America, has been approved by the Hudson-Fulton Commission as a feature of the official program.

The airship exhibition and contests will begin with the opening day of the celebration, September 25th, to continue daily, weather conditions permitting, until some competing craft shall successfully accomplish the flight to Albany. The rules provide that on each day during a certain interval, to be designated by the Aero Club's committee, the air craft shall make their start from an area to be defined later. The official start begins when they pass an imaginary line drawn from the committee's stand (probably on the tower of the Singer Building, lower Broadway) in a westerly direction.

The Line of Parade

THE line of parade has been selected with two main objects in view. The first is to permit the greatest number of persons to view it with the least inconvenience. The other feature that governed the selection was the necessity of picking out a route that would not make it necessary for the floats to pass under elevated railroad structures or other low obstructions. The floats will be from twenty to forty feet high, thirty-two feet long and fourteen feet wide. This is much larger than any other floats ever built. The line of the historical, military, and night carnival parades will be from Central Park West and

Col Henry W Sackett, Secretary Hudson-Fulton Celebration Commission

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110th Street down Central Park West to Fifty-ninth Street, to Fifth Avenue, and down Fifth Avenue to and through Washington Park to Fourth Street, where they will disband.

The Kaleidoscope Sign

KALEIDOSCOPE is an electric lamp device in the form of a rosette or any other artistic design, made up of various shaped recess-compartments in which lamps, in symmetrically disposed groups of colored compartments, are automatically lighted and extinguished, producing many combinations of colors and a bewildering variety of designs in which colors and shadows play an equal part in contributing to the beauty and attractiveness of the ever-changing display.

The Kaleidoscope is of all-metal construction, no glass being used except in the lamps. The system of operation is entirely thermostatic, depending upon the action of heat, the designs being produced automatically but with no suggestion of monotony. The operation is noiseless, simple and practically infallible, dependent on neither motor, clockwork or any mechanical movement.

The number of designs is practically unlimited, ranging from thirty-one in the eighteen-inch size to 16,383 in the six-foot size. The cost of current consumed by the Kaleidoscope is extremely small considering the number of designs produced. It costs from three to six cents per hour to operate the standard sizes, from eighteen inches to seventy-four inches.

While the circular designs lend themselves better to beautiful combinations of geometrical figures, these are by no means the only style of kaleidoscopic displays and signs manufactured. A number of signs have been sold in which compartments are arranged around the border of a decorated arch or entrance. By the automatic lighting and extinguishing of these compartments beautiful changing effects are obtained in outline and combinations of colors. Corner ornaments which produce hundreds of beautiful combinations and borders and friezes for decorative purposes in public halls, exhibition places and summer parks are also manufactured.

Hon Wm Berri, Chairman of Lighting Committee
Hudson-Fulton Celebration Commission

Celebration in Honor of Our Lady of Mt Carmel

Night Scene on First Avenue During the Celebration in July. Edison Service furnished current for the thousands of lights

Mammoth Electric Sign Across First Avenue

The Magic Electric Home

THE owner of a pretty little house in the suburbs is only an amateur electrician, but he has achieved such original results with the electrical devices now on the market that his home gives the visitor the impression of being run by magic.

Quietly entering the drawing room behind you, the host presses a button here, pulls a chain there, and the green electric lights hanging from the ceiling go out—the room is almost in darkness. Overhead the first faint streaks of rosy dawn appear. In a few minutes the sun attains its meridian, and gradually sinking towards the west gives place to twilight, to be followed in turn by the rising and setting of the moon.

These effects are obtained by the use of three rows of lights—one row red, another moonlight blue, the third amber, half hidden by the molding of the room. Tungsten lamps, which can be turned on and off as slowly as a gas jet, are used, and attached to them is an additional appliance called a "theatre dimmer," which is used on a larger scale to get the beautiful stage-lighting effects in which Mr Belasco delights.

This electrical phenomenon can not, of course, be shown in the photographs.

But wonderful as this is, something equally novel is found in each room the guest enters.

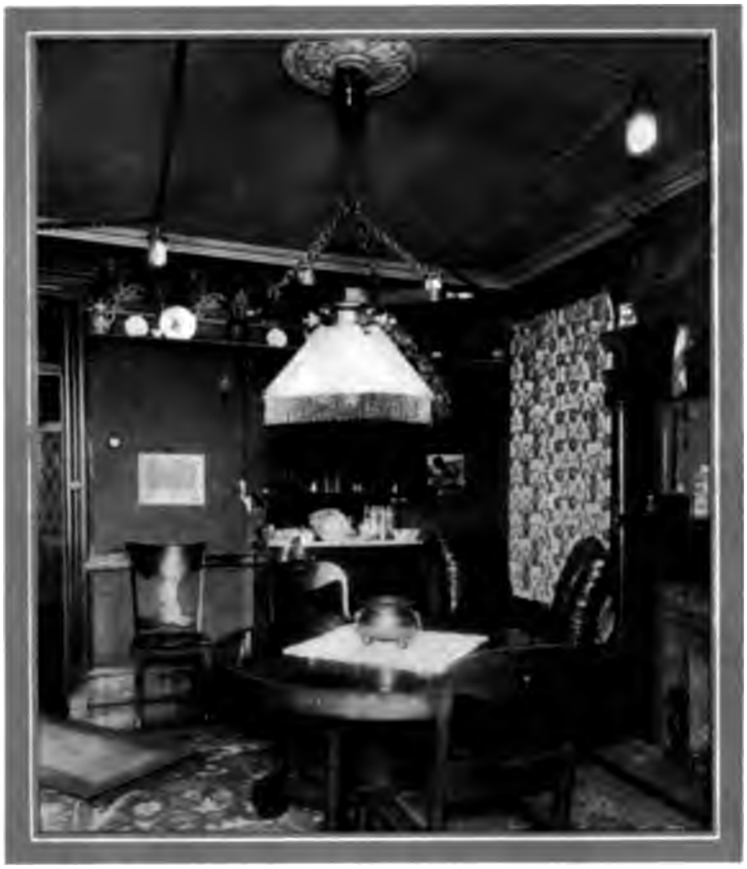
In the cozy corner of the den the unwary one receives his greatest surprise. Dull and uninteresting at first glance, the animal's skull on the wall in the corner suddenly starts into life as the guest seats himself, and winks knowingly as long as he sits there, for he is unconsciously sitting on the apparatus which turns on the winks. When the photograph of the corner was

"The switch for the lights over the dresser is conveniently placed on the right side of the dresser itself" taken the skull winked one eye at the photographer, although no one was sitting on the apparatus. But this is a bit of magic which Mr O refused to explain.

The winking effect is obtained by the use of a "skidoodle plug" in the lamp inside the skull. This plug causes the filament to ignite and go out instantaneously as the current passes through, and keeps it up as long as it is turned on. In various forms this is the appliance which adds a variety to the glittering signs along the "Great White Ways" of our big cities.

Hammered copper incense burners have been ingeniously converted into globes for small colored lights, which are half concealed among the draperies of the cozy corner.

A Japanese umbrella spread out over the piano is the novel feature of the music room. It is hung with electric lights, one at each point, concealed in Japanese lanterns, the colors carrying out the oriental effect and giving just the right light in which to listen to a moonlight sonata. The feed wire for these lights comes from the corner of the room and runs around the edge of the umbrella while the button for operating the lights is in the bottom of the Japanese lantern, which takes the place of the umbrella handle.



"The beauty of the dining room is furnished by the arrangement of the central lights. The lights all through the house can be turned on half or quarter or full, as is done with gas"

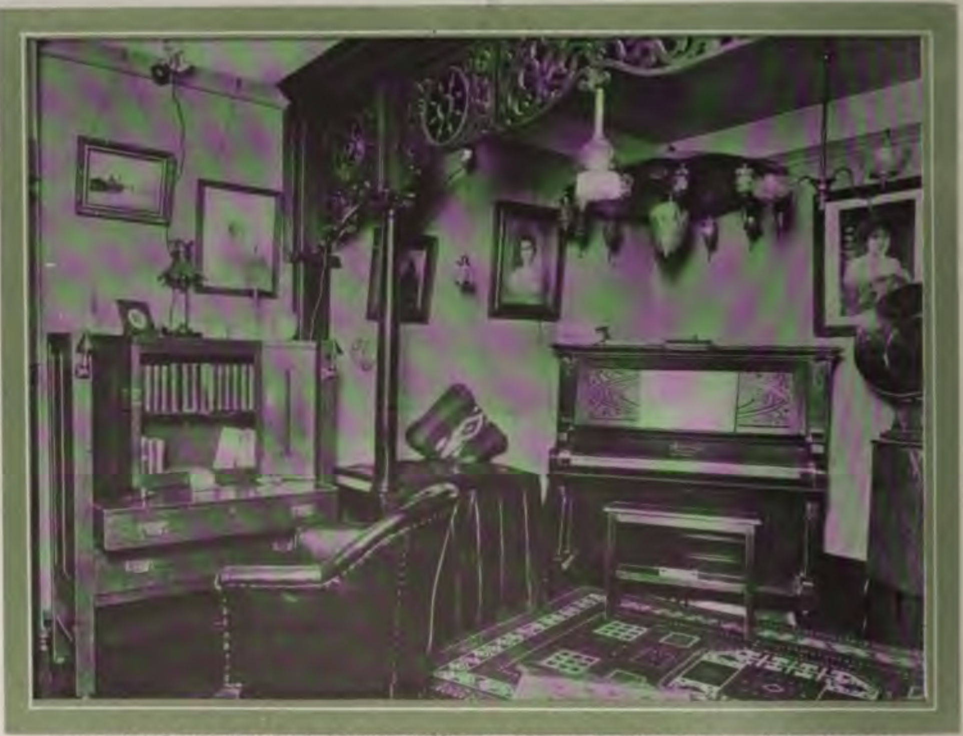
Over the piano a tube light in an adjustable frame of polished copper, shaded with the same metal, is thrown on keys and music.

Under the comfortable leather seat beside the piano lurks another surprise for the guest. Divested of its leather coverings, and the various Tungsten lamps, skidoodle plugs and tube lights put in operation, it becomes a theatre built by the amateur electrician, presenting scenery painted by himself. The curtain slowly rises. Vesuvius is seen smoking in the moonlight, Pompeii and its bustling inhabitants nestling at its base. The little red light on the mountain grows larger, ashes and red-hot lava flow down its sides, the conflagration increases, the people disappear, the curtain falls on a dreadful scene, and the theatre quietly resumes its seating capacity beside the piano.

All this is managed through one little switchboard in the back of the miniature theatre.

The practical lighting apparatus installed by this amateur electrician are equally beautiful and unique. The wiring of the desk in the corner next the music room is one example. These wires are carried in through the thick posts of the desk out into the copper brackets at each side on which the lamps are placed. The lamps are twisted, conical shaped Tungsten lamps, which can be turned up or down at will and are shaded by polished copper shades in the same shape, whose points rest on the points of the lamps. From each light hangs a copper chain which, when either one is pulled, turns on both lights. These brackets and shades were made from drawings furnished by Mr O.

The large central light, which hangs on heavy chains from the ceiling in the den, is shaded by a cathe-



"The wires for the desk lights are concealed inside the posts." This photograph also shows the cushioned seat, which is sometimes a theatre, and the Japanese umbrella with lights concealed in the lanterns dral glass dome and consists of two tube lights, one blue, the other amber, a couple of feet long. These tube lights are seldom used in private houses, but are frequently seen outlining the framework of shop windows and spread in rows throughout the interior of the shop. They give an indescribably soft, mysterious light.

In this same room there is a relic of other days—a handsome oil lamp remaining from the wedding gifts, but which is now converted into an electric lamp. The oil vessel was removed and an electric lamp hung in the base, while another was placed where the wick used to be.

In the dining room the arrangement of the lights and fixtures is entirely original, and the beauty of this room is furnished by the unique arrangement of the central lights. From each corner of the room come heavy cable copper chains finished in verdi to carry out the color scheme of the room, which is done in Flemish oak, red burlap and verdi copper for trimming. These chains are stretched so tightly that where they join to form a square over the dining room table they only sag two feet from the ceiling. Their weight is so great that expansion bolts have necessarily been used to hold them in place.

"When its photograph was taken the skull winked one eye at the photographer"

Through the center of this square, suspended from the ceiling by the same kind of chain, is a design like a Maltese cross in Flemish oak. From the center of the cross hangs a cluster of four lights shaded by a large dome of copper, polished on the inside and finished in verdi on the outside, and hung with red glass fringe. Deeply encrusted around the top of the dome where it joins the cross are small lights covered with amber glass and copper shades, which stand out like bells and add to the brilliancy of the lights. All of these lights, as in the drawing room and all through the house, can be turned on half or quarter or full, just as one does with gas. The wires are run and half concealed along the cable chains. This unique design was drawn by Mr O and the chains, copper dome and Flemish oak cross all made from his drawings, and, in fact, the whole color scheme of furniture, wall draperies, ornaments and lights have been carefully thought out by him and harmonized.

There is an electrical cigar lighter which saves the guest a vain hunt

Large Apartment Building at Park Avenue and 116th Street, where a hydraulic elevator installation has recently been closed down and an electric elevator substituted, for which current is supplied by Edison Service

The Abandoned Steam Pump Which Supplied Water Pressure for the Hydraulic Elevator

for matches, which this household hardly ever sees. The lighter has a base like a small glass candelabra, with a rounded lamp on top like a disk, that comes to a white heat on pressing the button in the base. It has wire and plug ready to be attached to any fixture when needed. The electric chafing dish is wired and ready to be connected in the same way. The suction carpet sweeper can be taken from room to room and the plug attached to any fixture while the operator guides the sweeper over the carpets and rugs. In every room an electric fan waits for the warm weather, and in the fireplaces electric logs, installed by the man of the house, keep out the cold.

The Abandoned Elevator Mechanism

In the kitchen an electric iron is provided with the same wire and plug, to be connected when needed.

In the bathroom the electric vibrator is connected by cord with the lamps, which cuts down the cost of the current. The shaving glass in this room is lit by small electric lamps fitting closely over each fold of the glass and turned on by a switch in the right fold.

An electric pad takes the place of the old-fashioned hot-water bottle in this house. It is covered with eiderdown and rubber and is over two feet square. It is perfectly safe to place it between the sheets, turn the current on at the desired heat and then go to sleep, assured that the same temperature will be maintained all night. The pad is flat and flexible and can be wrapped around the body wherever there is pain, its steady heat, increased or diminished at will, relieving the patient more quickly and effectually than the old-fashioned hot-water bottle, which usually grows cold at the very moment it begins to do any good.

Night lights in the bedrooms hang conveniently above the sleeper ready to be switched on at a second's notice, and over the top framework of each dresser four lamps are turned so that their light shines directly into the mirror. The wires for these lights run down the back of the dressers and are turned on by a switch under the right side of the projecting top.

There are side lights, hanging lights, globe and dome lights in every nook and corner. No matter by what door you enter a room there is a light ready to be switched on. And every bit ot the hard work of installing these lights and appliances has been done by one man, aided only by his untiring desire for a convenient and beautiful home. He has succeeded in his aims and most interestingly demonstrated what electricity can do for the modern country house.

Exhibition of Building Materials and Appliances

A FREE permanent exhibition of high-grade building materials and appliances was formally opened on March 31st of this year in the Builders' Exchange, 30-34 West Thirty-third Street, New York.

This exhibition has the endorsement of architects in Greater New York, and offers to manufacturers and dealers in building materials a most effective and profitable method of advertising their goods. Every means is being employed to make the exhibition interesting and attractive as well as educational.

Night at the Plaza, Fifty-ninth Street and Fifth Avenue

An Electromagnetic Drill

A VERY efficient electromagnetic drill has recently been designed by the German engineer, Burckhardt. This machine is intended for use in all branches of the iron industry, for example in boiler shops, ship yards, erecting shops, and the like.

The ingenious combination of an electrical motor with an electromagnet adapts the machine to all boring, milling, countersinking and broaching. Electromagnets placed on both sides of the drill spindle throw the machine so tightly against the work as to allow any one of the operations mentioned to be carried out rapidly.

Automatic Self-feeding Printing Press in the Establishment of the Strauss Printing Company, 77 John Street. The press is driven by an electric motor supplied with current from the Edison Service

A special attachment on the drill spindle allows the tool to be rapidly and accurately centered on any given point of the working surface. The machine is thus adjusted within a few seconds, it being suitably suspended for this purpose. On horizontal surfaces the drill can obviously be used without any suspension. A special device is used in upward drilling.

The electromagnetic drill comprises four main parts, namely, the driving motor, the drill proper with its centering device, the electromagnets, and the suspension.

The motor armature drives the drill shaft through a normal toothed-wheel gearing. The shaft can be axially displaced with a view rapidly to adjust the drill point on the center mark. The balanced suspension device can be used for the same purpose.

The electromagnets are placed on a yoke, pivoted in the plate extension of the machine, and fixed with a nut. The magnet yoke, with its two coils, can accordingly be adjusted to any desired angle. A clamp screw is used to hold it in position. The pole pieces fitted to the ends of the magnet coils are interchangeable, their length and shape being adapted to the tool in actual use. The tool is preferably a spiral drill of hard tool steel.

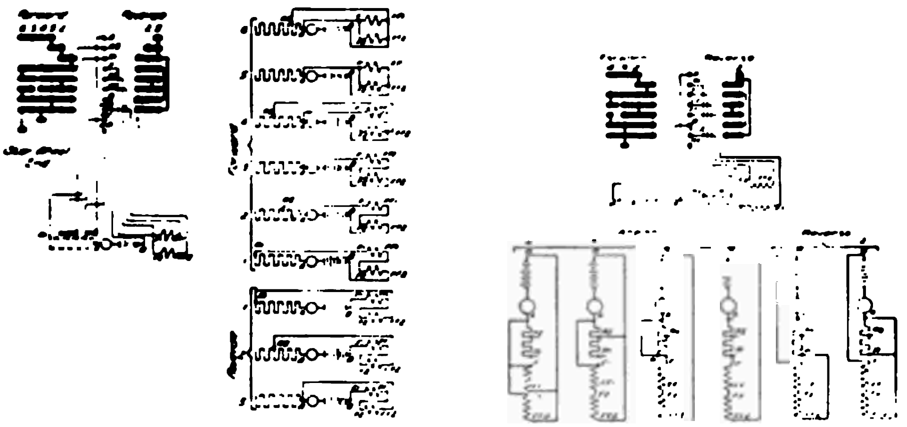
By employing pole pieces of different heights, drills of different lengths can be used.—*Scientific American.*

Advantages of Electric Automobiles

COST of maintenance means much with the majority of automobiles, but is a simple proposition with an electric. Special consideration should be given to this point. Electric cars are primarily for the avenue and the park. They are the cars of good form as well as utility and they are seldom handled with the stress and roughness which the heavy touring car is built to meet, and it follows, therefore, that one important class of repairs is seldom needed. Tires last longer, and damage to mechanism seldom occurs. With other forms of power one is momentarily in dread of the unexpected. The trouble may be in the engine, the fuel, the tires, or the lubricant. Come it does, with unpleasant regularity. It may be something that the driver can cope with at the expense of time, temper, and personal convenience, or it may be that he must be ignominiously towed to the nearest shop. The electric, however, has fewer elements to be considered, and it has been built throughout with an eye to reliability.

The electric must not be considered a fair-weather car. It is quite the contrary. It is, as a matter of fact, the only satisfactory car throughout the whole year. This is because it has no water to freeze, no lubricant to grow heavy at low temperature, and, if desired, it can be closed more tightly against wintry blasts than any other form of vehicle. Its extreme simplicity, its readiness to go at any time and under any conditions, make it the

One of the new Electric Automobiles for Mail Service Adopted by the Post Office Department in New York after an extensive investigation into Automobile merits. They were built by the General Vehicle Company, Long Island City



Diagrams of Connections for Electric Automobiles Using the New Continuous Torque Controller. The development of the controller and connections is also shown in the illustrations

ideal car for disagreeable weather, and gives one more instance in which the electric must be taken as the criterion for judging other cars. These characteristics especially commend this car to the use of physicians and others whose daily work or profession demands travel at all seasons.

Electric's Long Trip

GEORGE W DALY, who has just accomplished the great feat of driving the Woods electric victoria automobile from Philadelphia to Pittsburg and return, was given a very enthusiastic welcome by the Quaker City Motor Club members and a large party of personal friends interested in motoring.

Notwithstanding the generally rough roads which the sturdy little Woods car had been driven over during the preceding two weeks, the pretty vehicle looked little the worse for wear, and Mr Daly stated that he had experienced absolutely no trouble from the time he left Philadelphia till he returned.—*Electrical Review and Western Electrician.*

THE EDISON MONTHLY suggests a larger recognition on the part of automobile manufacturers of the possibility of developing the use of pleasure automobiles in this city, with its parks and parkways, unrivaled for beauty, length and interest.

New Electric Delivery Wagons Recently Placed in Operation by The New York Edison Company. The General Vehicle Company were the builders

Holtzer-Cabot Specialties

THE Holtzer-Cabot Electric Company, of Boston, manufacture a number of signaling devices, such as horns and bells, to be operated on high-voltage circuits.

The high-voltage vibrating bells can be operated in series or multiple on direct-current circuits up to 550 volts potential, without the use of external resistances or condensers. The current required for a twelve-inch gong at 125 volts is about one-tenth of an ampere and for a fourteen-inch gong at 550 volts about eight one-hundredths of an ampere. These bells are wound for voltages as follows: all sizes, 110 volts; six inches and upwards, 220 volts; ten to sixteen inches, 550 volts.

The electrical horn is a novel and effective device for signaling. The tone is powerful and of a peculiar quality, giving a signal which is not easily mistaken.

The accompanying illustrations show a number of the specialties.

Holtzer-Cabot Watertight Bell

Holtzer-Cabot Electrical Horn for Direct-Current Circuits from 10 to 250 Volts

Electric Vehicles Versus the Horse

A RECENT issue of *The Commercial Vehicle* gives some interesting comparisons between the horse-drawn wagon and electric vehicles, some quotations from which follow:

"Merchant stables, transfer companies and manufacturers doing their own teaming alike have felt the cost of feed for stables full of idle horses which have been 'eating their heads off,' and in those situations where commercial vehicles have been owned in conjunction with horse vehicles the owner has found the inanimate machine in sharp contrast to the cost and work and worry of the stables.

"To the horse owner there is always the consciousness of feed and proper care necessary that merely life, to a proper physical standard, be kept in the horse. The idle horse may not consume quite so much feed as does the horse hard at work, but in his idleness the matter of feeding must be more carefully looked after if the animal shall not suffer from the enforced confinement. Many a careless or ignorant owner of horses has let no more than a couple of idle days pass without restrictions as to feed for his animals, and on the next working day has had his horses dropping dead in the streets or paralyzed beyond hope of cure.

"At any time and season the horse in idleness is a double risk and cost to his owner. In the season of midsummer, when brassy skies are overhead and reflections from burning walls and pavements at the best cut the activities of the horse by 50 per cent, this chance of idleness is doubly menacing. In every city a season of unusual heat is marked by horses dropping dead or incapacitated and ruined in the hot streets, to say nothing of the attendant cruelty that comes of working these animals under such conditions.

"In times such as these the man working the motor truck experiences a sense of relief that is unknown to the driver of the horse vehicle. If idleness be imposed upon the commercial vehicle, its owner runs it into its accustomed shelter, certain that until he takes it out again it will be no further charge upon him for maintenance; certain that while it is resting there is no possibility of depreciation so long as it is protected from the elements; and, more than all, confident that, no matter what the excessive heat of the streets, he can depend upon the machine for its maximum of activity with no tax upon his sympathies."

Edison Service is always reliable, and is available twenty-four hours a day.

Wasted Energy

ENERGY wasted in shafting and belting produces no revenue but is an ever present element of loss. It is constant, no matter if you run but one machine or the whole shop.

Suppose your shafting loss is one-half of the total power that you develop. Then only one-half of the total number of horse-power hours that you develop is used in actual production. The shafting does not earn any money for you, so you must charge against the effective power the total cost of energy produced. In other words, your cost per horse-power delivered at the machines is double that produced at the engine. This is at full load. At light loads your cost per effective horse-power hour may be from four to ten times the cost of the energy at your engine fly-wheel.

We have used a shafting loss of 50 per cent. Often it is greater than this—rarely less.

The way we can reduce your operating costs is to eliminate this waste power by cutting out shafting and belting losses. We don't claim that we can furnish power in every case at the same or a lower cost than you can make it, but we do maintain that with a good motor installation, by doing away with useless losses, we can supply the effective power for less money than you can do it yourself.

You will probably be interested to know how much of the energy you develop is wasted and how much is effective. Give us the opportunity and we will show you, and further, how you can reduce your present costs by paying for only the power that actually produces revenue in your shop.

Hudson-Fulton Lighting

BY a plan agreed upon by the officials of the various lighting companies having in charge the illumination of New York at the coming Hudson-Fulton Celebration, the most continuously brilliant spectacle ever offered by a community is assured. The present retail rate for Manhattan current is ten cents a kilowatt hour. As The New York Edison Company's contribution to the celebration, it has been decided to make the charge for electricity supplied in the territory it serves during the period of festivity five cents per kilowatt hour. This will necessitate special meters for temporary installation.

The company will place expert decorators at the service of all those who are disposed to help brighten the city during Hudson-Fulton times. Assurances of the willingness of residents to co-operate with the companies have been received from many persons living along the route to be taken by the historic parade and the night carnival. The Hudson itself will, of course, be a blaze of light from the many vessels, anchored and moving.

Wireless Telegraphy

AT the forthcoming International Conference of Underwriters at Baden-Baden, Germany, the question will be taken up as to whether the insurance premium on a ship should be lowered when the vessel is fitted with a wireless-telegraphy installation.

Large Electrically Operated Gantry Crane, used by the New York Central Railroad Company for unloading coal barges in New York City

THE EDISON MONTHLY

VOLUME II NUMBER 5

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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
GENERAL OFFICES:
55 DUANE STREET, NEW YORK CITY

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The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

The Third Annual New York Electrical Show, which opens in Madison Square Garden, October 11th, will undoubtedly be the greatest and most successful exhibition of its kind ever held. Especial attention is being given to the application of electric power in the industries, and working exhibits representing many manufacturing processes will be in operation.

◆

Electric sign advertising has grown to such proportions that the principal thoroughfares of cities are fairly ablaze with light. The beautiful effects that are produced in the signs along Broadway are beheld with wonder by visitors to the city and create a lasting impression.

An idea of the great extent of the electric and illuminated sign business can be gained from an article on another page, entitled Electric Sign Advertising, which describes the very successful work of The O J Gude Co.

Now that cold weather is approaching electric fans should not be relegated to the storeroom, as they may be used for many purposes during the winter months. They may be used to advantage for obtaining a forced draft in the furnace, which materially aids in the time required to heat the rooms of a house.

The breeze from an electric fan blowing through a radiator circulates the heated air and gives a more even distribution. Fans are also largely used in show windows to prevent the accumulation of frost. There are many other purposes, including ventilation, for which electric fans can be used in cold weather, and they should not in the least be considered a hot weather necessity.

◆

The autumn is here, and chilly days and nights can be made cheerful and comfortable by the use of electric radiators. They are clean, convenient and economical in operation. They may be carried from room to room, as convenience dictates, and it is only necessary to attach a cord to the nearest lamp socket.

In the cold winter nights which are fast approaching an electric heating pad in the bed adds greatly to the comfort of the sleeper.

◆

Never in the history of this nor any other country has there been so magnificent and so mammoth a spectacle as the Hudson-Fulton Celebration, which has just drawn to a close. The greatest feature of the celebration was the extensive electric decorations, both public and private. More than a half million incandescent lamps were used, and the principal streets and avenues presented a fairyland appearance.

In addition there were many arc lamps and searchlights in various parts of the city. From the Statue of Liberty to Spuyten Duyvil Creek the city was one blaze of light.

* * *

The scintillators were installed and operated by The New York Edison Company, whose power houses supplied the illumination during the two weeks of the celebration.

* * *

The great battery of Ryan scintillators, located at 153d Street and the North River, produced a spectacle never before seen around New York. The twenty large searchlights or scintillators, with their vari-colored rays and fantastic figures, produced scenes of such marvelous beauty that words of the highest praise were drawn from all spectators. The rays of light were thrown upon jets of steam outlining various figures and upon clouds of smoke issuing from enormous bombs fired at intervals.

* * *

To the soul of the immaculate housewife there is a comforting charm in the workings of a vacuum cleaner. To see it pick up all dust and litter and restore the pristine freshness of draperies, upholstery, rugs, etc, is a joy beyond words. And to see its time and labor-saving qualities unmistakably demonstrated makes her strong in the determination to be the happy mistress of such a wonder worker.

* * *

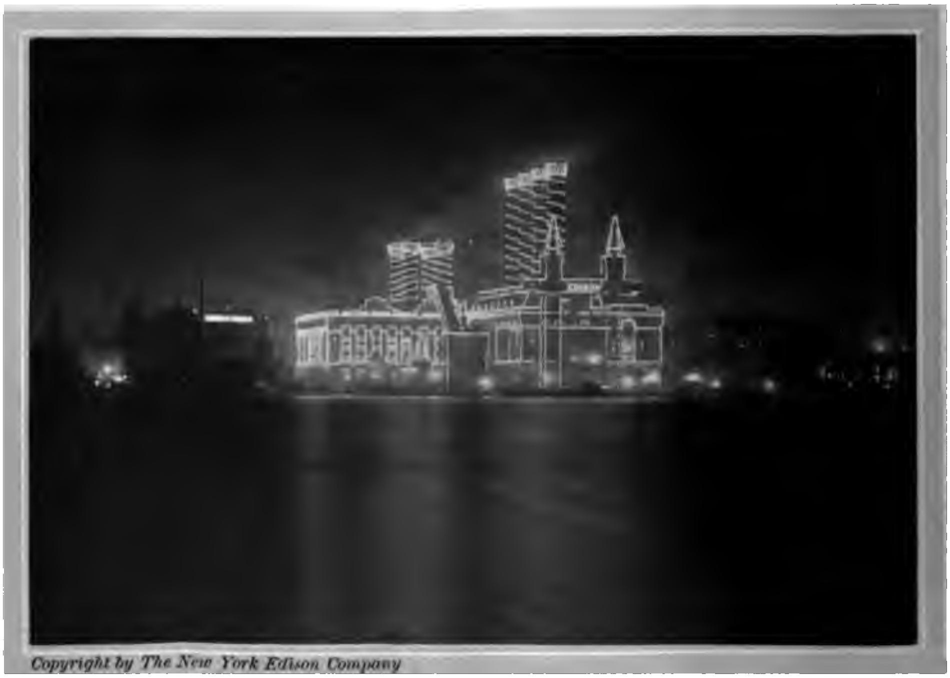
One of the latest applications of electric illumination is the lighting of golf links. Hundreds of onlookers watched the putting matches by electric light at the Dunwoodie Country Club recently, when the new putting course of six holes was used for the first time.

The Hudson-Fulton Celebration

WHEN Henry Hudson sailed up the river that bears his name in search of a northwest passage to India the shore on either hand was the edge of a wilderness, the lonely domain of the red man. Little did the explorer dream that great cities would eventually cover those shores and that three hundred years later his memory would be honored and exalted by the dwellers therein.

Nor did Robert Fulton anticipate great fame when a hundred years ago he launched the little "Clermont" upon the Hudson for her maiden trip to Albany.

A joint celebration of the achievements of these two notable men was maintained during the last week of September and the first week of October in which every civilized nation on the globe took part. The first week was marked by parades, naval pa-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Great Waterside Stations of The New York Edison Company, the Largest Electric Power Stations in the World. This view shows the decorations for the Hudson-Fulton celebration; 30,000 incandescent lamps were installed on these buildings.

geants, ceremonies, dinners, receptions and exercises in the Greater City and its vicinity, while the second week was devoted to pageants and exercises in the cities and towns bordering on the Hudson.

On the opening day of the celebration, September 25th, the largest fleet of war vessels ever assembled in American waters formed a line in the river nine miles long. Our own navy was represented by fifty-two boats, sixteen of which were battleships. Great Britain, Germany, France, Italy, Holland, Argentine, Mexico and Cuba all sent warships. There was a parade in the afternoon over forty miles long of vessels of various classes, divided into ten squadrons, which escorted the historical replicas, the "Half Moon" and the "Clermont" from Staten Island to the water gate on the Hudson, at 110th Street. At this point the parade circled the battleships and cruisers of the different nations anchored off Riverside Drive.

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The Hudson River as seen from the New Jersey Shore during the Fireworks Exhibition. The Viaduct, Grant's Tomb, and the illuminated battleships can be plainly seen in the distance

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A Battleship outlined with Electric Lights. A portion of the fireworks display can be seen at the right

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Fireworks Display and Illuminated Battleships

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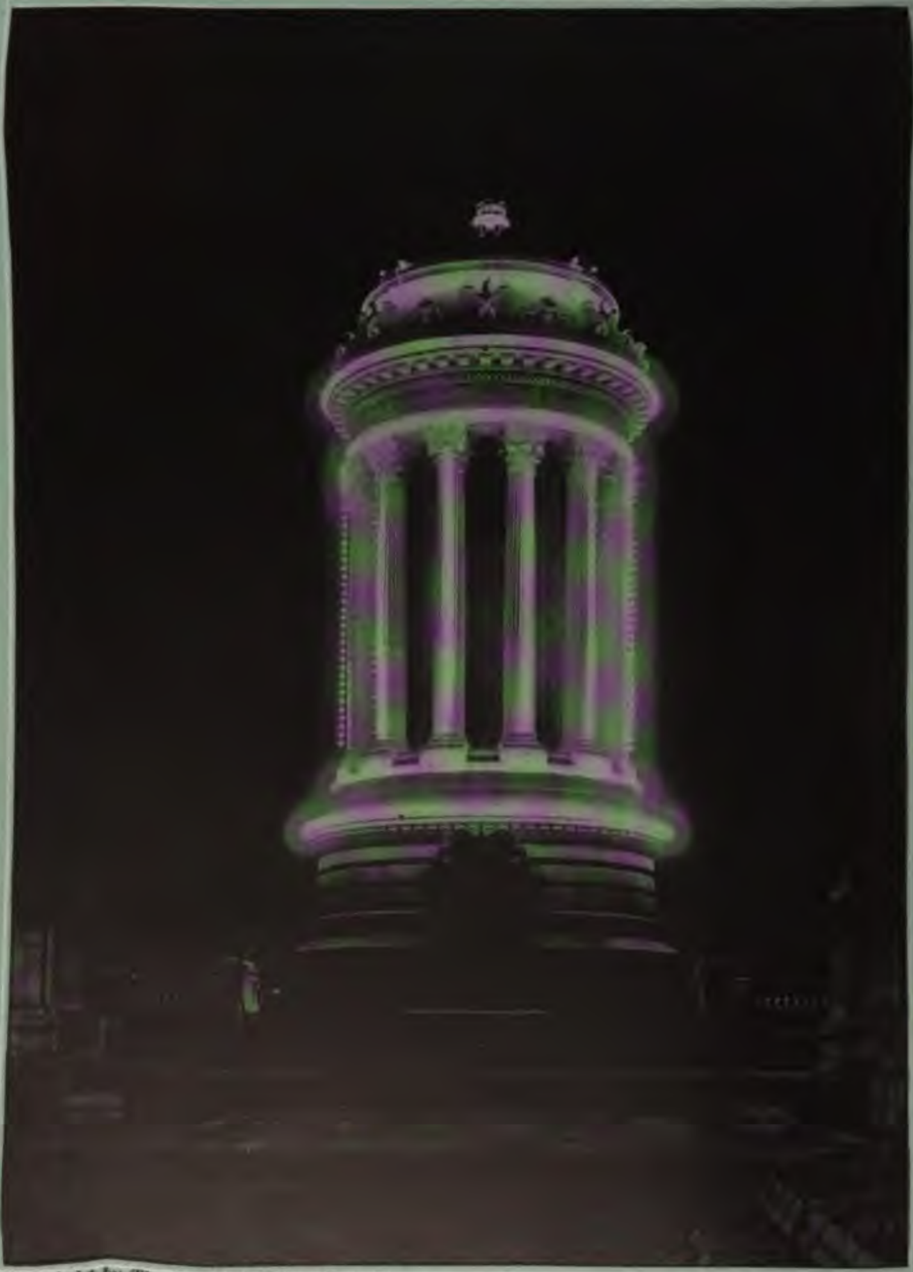
Another View of the Fireworks Display and Illuminated Battleships. The Viaduct and Grant's Tomb are shown in the background



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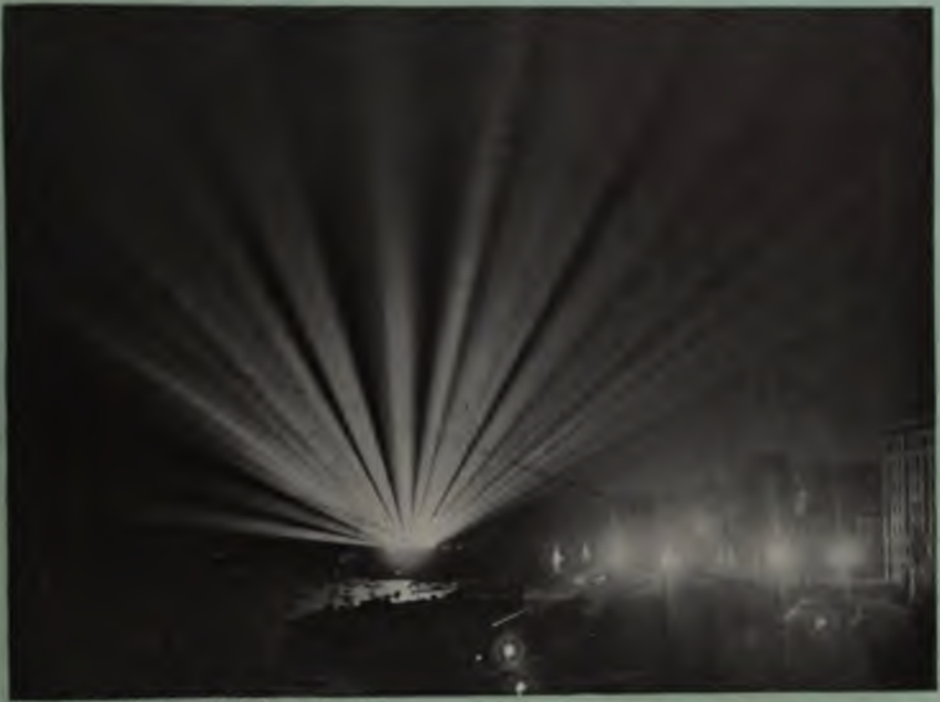
Soldiers' and Sailors' Monument, Ninety-sixth Street and Riverside Drive. More than 1,500 incandescent lamps were used for the electrical decorations



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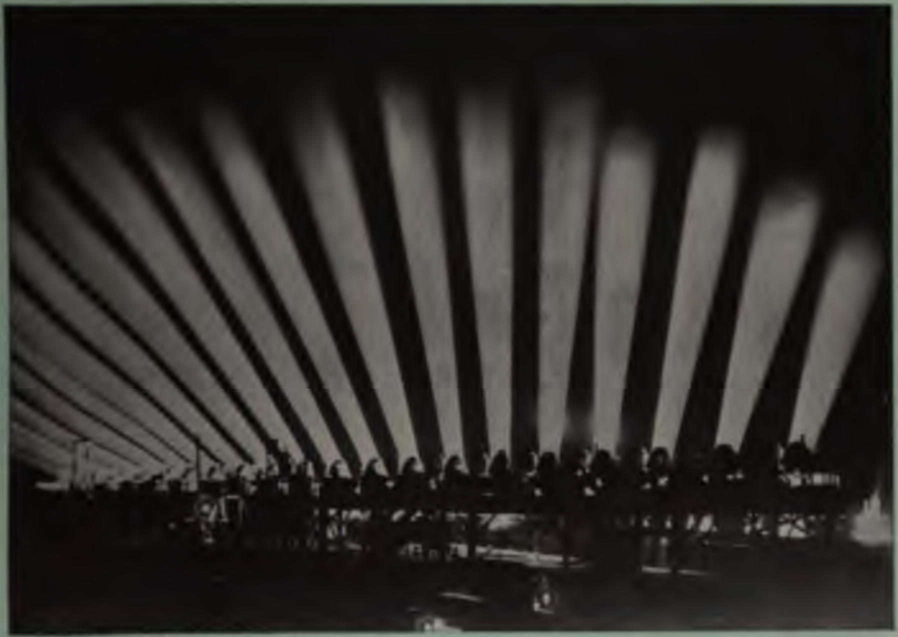
View of the Ryan Scintillators in Operation, from 145th Street



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Rear View of the Ryan Scintillators. The projectors can be plainly seen in the foreground

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Looking North from the Metropolitan Tower, Showing the Illumination of Queensboro Bridge and the Waterside Sations of The New York Edison Company

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Looking South from the Metropolitan Tower, showing the illumination of the Williamsburg, Manhattan and Brooklyn Bridges. In the distance are the Brooklyn Institute of Arts and Sciences, the Water Tower and the Memorial Arch at Prospect Park

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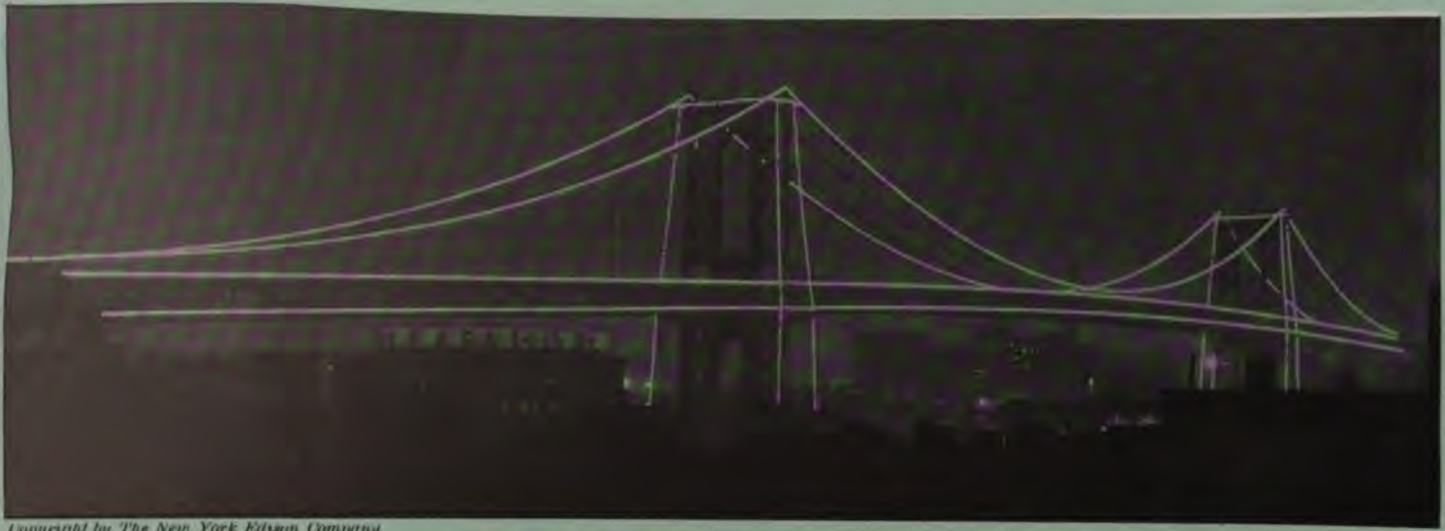
The Water Gate at 110th Street and Hudson River and the Illuminated Battleships. Here the replicas of the "Clermont" and the "Half Moon" were officially turned over to the Hudson-Fulton Celebration Commission



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Illumination of the Manhattan Bridge. About 11,000 incandescent lamps were used for the electrical decoration

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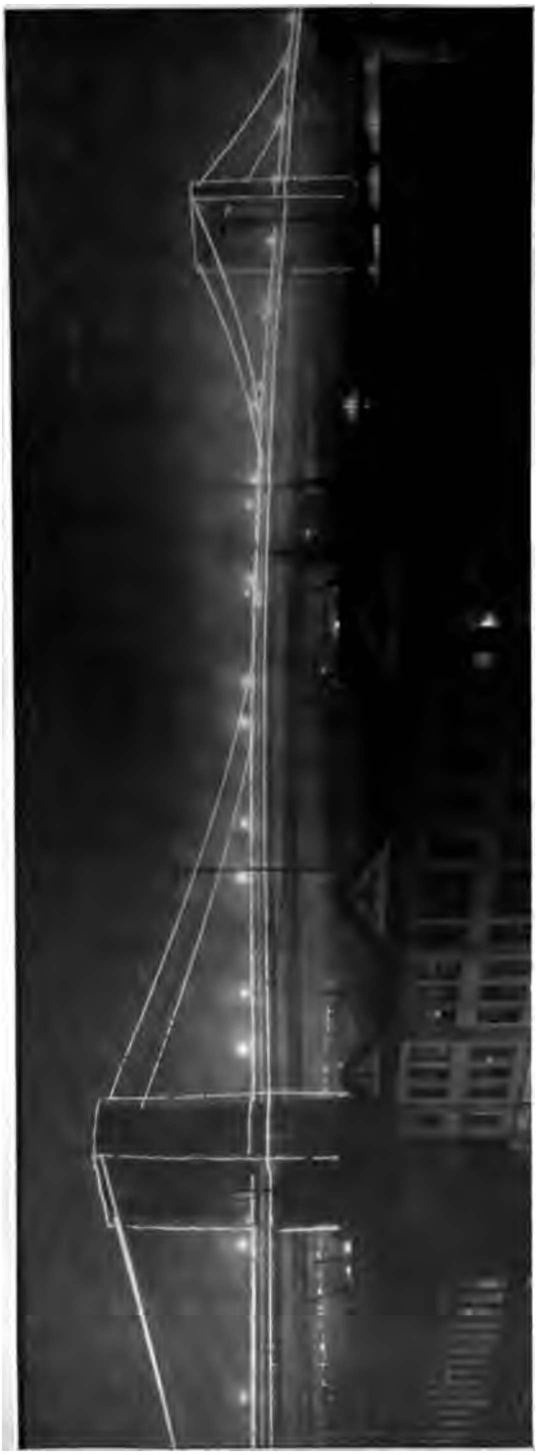
The Viaduct and Grant's Tomb as seen from the New Jersey Shore. The light spots on the river were caused by the swaying of small launches, due to the tide



The Lighting of the Brooklyn Bridge, Showing the 13,000 Lights Used in its Decoration

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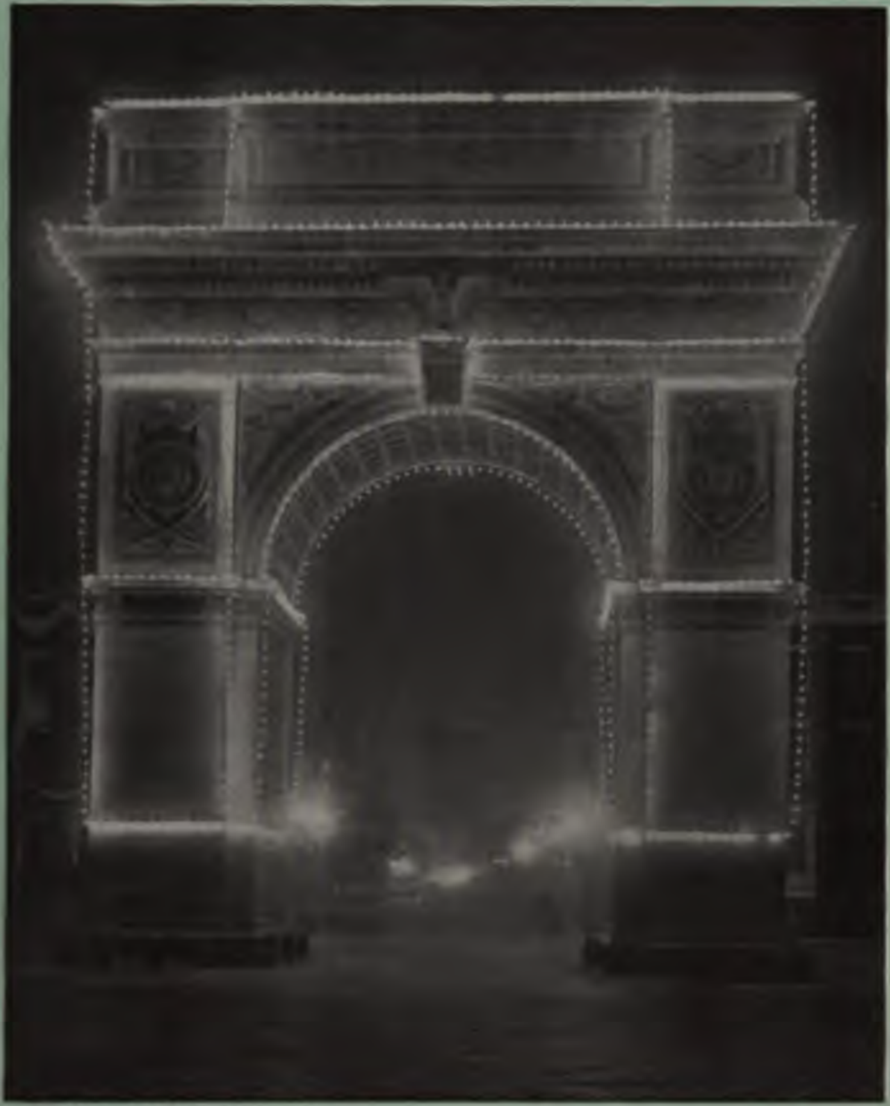
The festive aspect of the city was most apparent at night, when general and extensive illuminations transformed the prosaic town into a fairyland of brilliant coloring and dazzling light. From Liberty Island to Spuyten Duyvil the Hudson shore on both sides was ablaze. Shipping and buildings along the water front were strung with thousands of incandescent lamps. The warships were outlined with them. No words can adequately describe the beautiful and impressive sight of the great city painted in electric light. Besides the extensive illumination, there was a magnificent fireworks display after dark.

Though the Hudson River claimed the greater part of the attention and interest of the people, the East River made no mean contribution to the illuminations. Its four big bridges were etched in lines of fire and presented an unique and brilliant spectacle to the sightseeing crowds.

In all the boroughs the public buildings were illuminated; also the Viaduct, Grant's Tomb, Washington Arch, the Soldiers' and Sailors'



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Washington Arch with its 1,500 Lights is shown in the foreground. Through the Arch, Fifth Avenue with its parallel rows of lamps can be seen extending into the distance

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Decorations of New York City Hall. It required 3,000 lamps to outline this building

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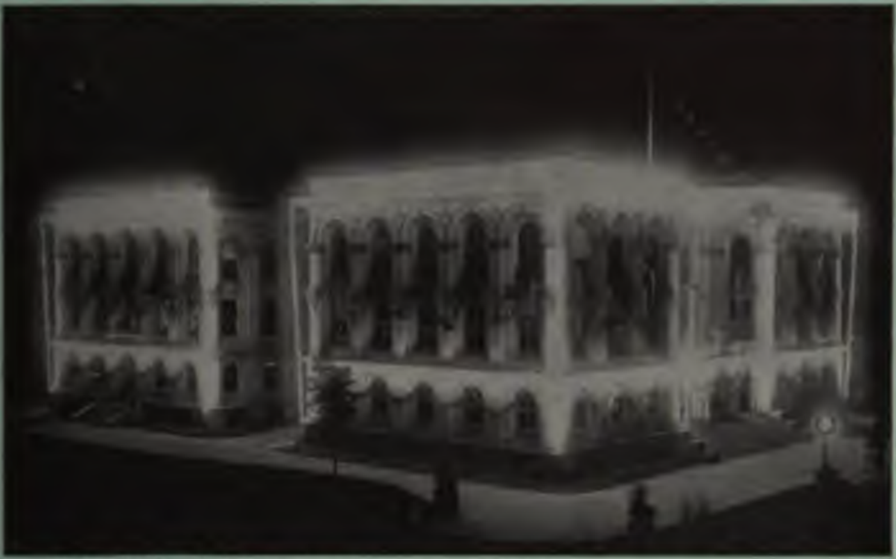
View Looking South on Fifth Avenue, towards Washington Arch. The Edison Manufacturing Company's building is seen at the right



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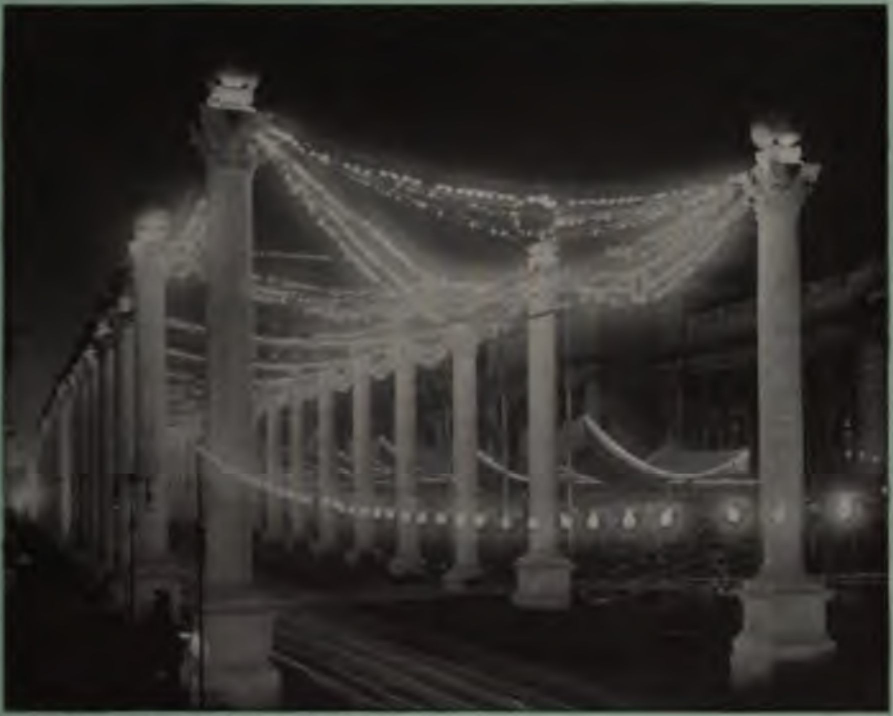
Bronx Borough Hall, decorated for the Celebration



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The Court of Honor, Forty-second Street and Fifth Avenue. Eight thousand lights were used in this decoration

Copyright by The New York Edison Company

Riverside Drive Viaduct. More than 5,000 lamps were used in outlining this structure

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The Union League Club Building, on Fifth Avenue. One of the most beautiful and effective examples of private illumination monuments in both New York and Brooklyn, the water tower and Institute of Arts and Sciences in Brooklyn.

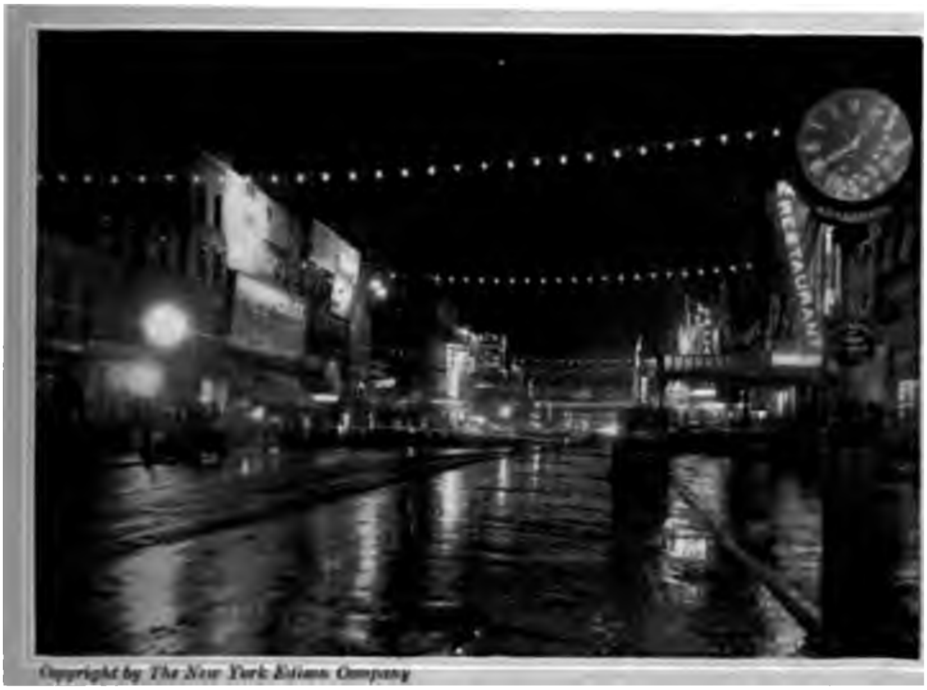
In Manhattan the Court of Honor, facing the new Public Library Building on Fifth Avenue, was built specially for the celebration; it had thirty-six columns of white stucco work, fifty-five feet high, each surmounted by large gilt balls. Many rows of incandescents, symmetrically arranged, formed the decoration, together with garlands of foliage.

A battery of searchlights on Riverside Drive and 155th Street playing on a curtain of steam with multicolored rays was the crowning feature of the illumination.

The generating stations of the New York and the Brooklyn Edison Companies were illuminated. Waterside Stations at Thirty-ninth and Fortieth Streets and East River, Manhattan, being brought out with great distinctness and beauty, the great stacks towering into the sky like pillars of flame.

New Jersey made a fine showing in the illumination. The North German Lloyd and the Hamburg-American steamship lines had their big docks brightly illuminated with strings of incandescents; Colgate & Company had a sign specially modeled for the celebration, representing the "Half Moon," with waves dashing against it and flags fluttering in the breeze.

Besides the public lighting, the citizens and business men of New York contributed generously to the illumination of the city by lighting their buildings and residences. Many club houses were profusely decorated, not only with flags and bunting, but with hundreds of lights. The larger hotels, restaurants, theatres and department stores were bathed in electric light. Be-



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Looking East on 125th Street

Mr Charles R Lamb, Chairman Committee on Decorations and Grand Stands, Hudson-Fulton Celebration Commission. One of Mr Lamb's most notable designs was the Court of Honor

tween the towers of St. Patrick's Cathedral a streamer of electric light was suspended. The Metropolitan tower was a mass of light, visible for many miles in all directions.

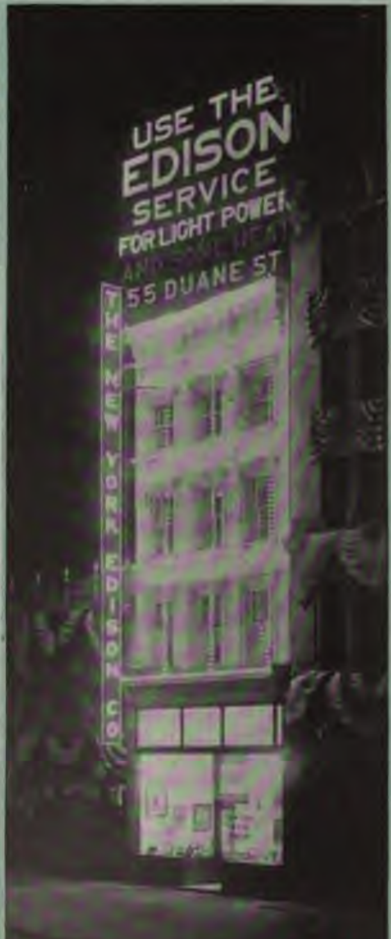
The Hudson-Fulton Celebration is over, but it will long be vividly remembered by all who saw its parades, pageants and illuminations. It was a sight that no one will ever see again, and every one who beheld the City of Light will concede that electricity alone could have made the wonder possible.

Electric Automobile for the King of Siam

THE Baker Motor Vehicle Company of Cleveland has just completed a fine electric automobile for the King of Siam.

The chassis and body of the automobile are standard. The body and running gear are finished in ivory. The top is made of a special leather enameled in white. The dash and fender are of white patent leather.

The upholstering is in a delicate green broadcloth, the royal color of Siam, with silver-gray Persian broad lace tapestry, puff rolls and silver-



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Second District Office of The New York Edison Company, at 124 West Forty-second Street

gray silk cord. All metal parts are silver plated and equipped with special silver electric lamps and meter case. The lever handles are of pearl. The hood has bevelled-glass windows at each side and in the rear. The side panels and front of the hood are emblazoned with the royal crest of the King of Siam.

Longest Telegraph Circuit

PERSIA and its capital, Teheran, have been very much before the public lately, but probably few people are aware that the news which has come through to London has passed over the longest telegraphic circuit in the world.

The distance between London and Teheran by wire is 4,000 miles, and the operator in Teheran communicates direct with the operator at the London end, automatic repeaters taking the place of operators at ten places along the circuit. The first repeating station from London is at Lowestoft, where the wires enter the North Sea, beneath which they run for 200 miles, to Emden, Hanover, where the second automatic repeater continues the message. Thence it is flashed to Berlin, Warsaw, Rouno, Odessa, Kertch, Sukhum, Kaleh, Tiflis and Tauris, from each of which stations it is instantaneously forwarded without human intervention, the telegraphist at Teheran, who receives the message from Tauris, being the first operator to handle it since it left London. From Teheran the line then extends to India, but nowhere else is there a circuit so long as that between Teheran and London.—*Electrical Review and Western Electrician.*

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The Bronx Office of The New York Edison Company

Electric Sign Advertising

SOME years ago Mr John Wanamaker and Mr H J Heinz were introduced, at a Paris hotel, by a mutual friend.

As they shook hands Mr Wanamaker looked at Mr Heinz, and reflectively repeated the name "Mr Heinz? Oh, yes! You're the man who has that big electric sign on Broadway."

Mr Heinz laughed heartily, and declared the incident the best evidence of the wisdom of his decision to spend $20,000 for a single electrical display advertising the "Fifty-seven Varieties" at Broadway, Fifth Avenue and Twenty-third Street, the spot on which the Flatiron Building now stands.

The sign had made such an impression on Mr Wanamaker that, although he was half way around the world, it lived so vividly in his memory that the mere incident of meeting Mr Heinz recalled it instantly.

Mr Heinz afterward said that he heard of that sign in seven foreign

countries and twenty-six States of the Union.

This was, perhaps, the first notable electrical display used by a national advertiser on Broadway. It was designed and erected by The O J Gude Co, who have been quite properly called the "Creators of the Great White Way." To give this great advertising company this title is to give credit where credit is due, because there is no doubt that general advertising electrical signs blazed the trail for the "Great White Way" as it exists to-day. The Heinz sign, and others which followed closely, awakened the theatres and merchants to the possibilities of getting the attention of the public by means of brilliant electrical designs—not only awakened them, but really forced them to adopt the idea in self-defense lest their place of business be passed unnoticed as the eye was attracted and held by the big electrical displays.

It was a virgin field and The O J Gude Co had to be inventors as well as manufacturers. The many won-

derful effects produced were made possible by ingenious devices, all of which have been designed and manufactured in their own shops. Their electrical department to-day is one of the most fully equipped in the country, and is constantly at work on new ideas to be utilized by coming advertisers.

To increase the value of existing painted advertising bulletins the O J Gude Co worked out the scheme of illuminating them at night by means of electric reflectors. This was done so well that the method has been copied everywhere, and to-day nearly every city in the country having a main thoroughfare where people congregate at night, has its quota of these brilliant advertisements.

These illuminated painted signs are even preferred by some advertisers, since they are as valuable during the day as at night. Furthermore, they are less expensive than the large electrical displays, the average price for an illuminated bulletin, ten feet high by twenty feet long, in a central Broadway location, being from $5.00 a day

upward. In many respects the electric sign is the climax of advertising ingenuity.

The theory of advertising is, of course, to get the attention of the public, and impress on the mind some name or trade-mark so forcefully that the consumer will learn to demand a certain product.

So much time and thought is given to the preparation of advertising nowadays that most advertisements are effective, *if they are seen.*

There is no *IF* about the electric sign. *IT MUST BE SEEN. IT COMPELS ATTENTION.*

In talking of electric signs Mr O J Gude once said:

> "It is forceful advertising when you put an isolated, distinctive bulletin before half a million people—all readers—in a single night. THAT'S EXTRAORDINARY CIRCULATION.
>
> "But when the announcement is so towering, so dominating, that it burns its story into the memory of each

> reader, who is forced to see it hour after hour, its influence on the individual is so great that even circulation is secondary."

It is, perhaps, due to this impression created on the individual by the big electric sign that there is among many advertisers an idea that such advertising is exceedingly expensive. It is, consequently, interesting to note that on the contrary the cost, based on circulation—which is the only way to base advertising cost—makes electric sign advertising the least expensive of all modern methods of publicity.

The best way to prove this is to make an actual comparison. An electric sign is so much more dominating than other advertisements it is hard to find a basis for comparison, but perhaps the back cover of a magazine of national circulation is the best example.

It costs $7,000 to have, in colors, the back page of the monthly magazine of largest circulation in this country. That circulation is approximately 1,250,000 copies: The average cost of an electric sign, approximately forty feet high by forty feet long, in a dominating location on Broadway in the heart of New York, is $1,000 a month. The most conservative estimate of circulation—that is, the number of people who pass where this sign must attract their eye and attention—is 400,000 daily—12,000,000 during the course of a month. Thus for *one-seventh* the expenditure necessary to present an advertisement *once* to *1,250,000 people,* the electric sign will present it constantly and persistently, hour after hour to *12,000,000 people* —TEN TIMES THE CIRCULATION FOR ONE-SEVENTH THE COST.

The quality of the circulation reached by the electric sign realizes the general advertiser's wildest dreams. It flashes its brilliant story to all alike. It asks nothing of the reader in effort or expense—only an instant of time.

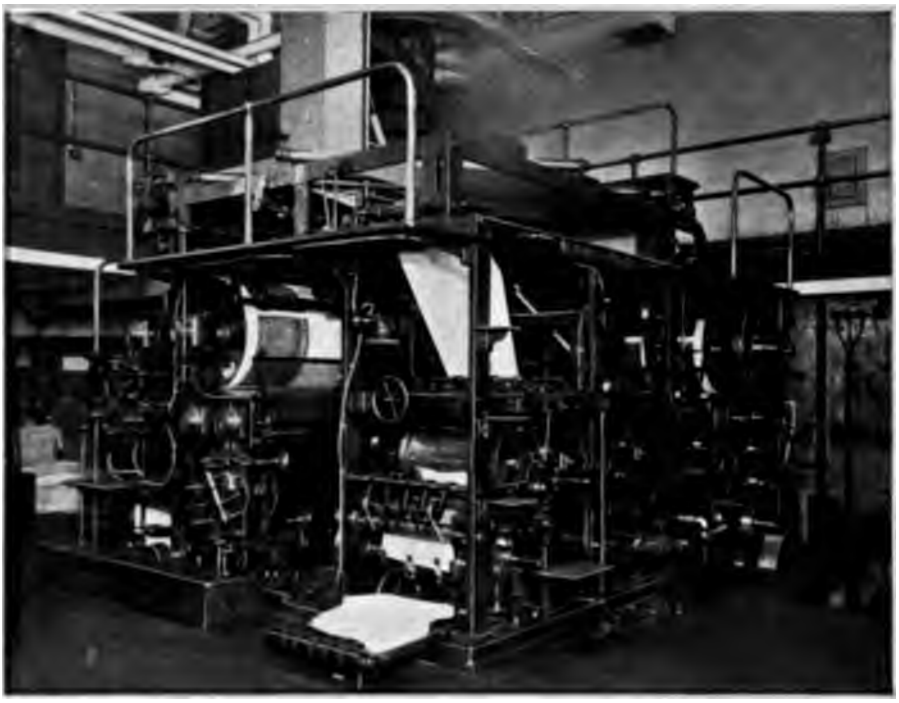
An estimate of the amount of money spent annually for electrical advertising is practically out of the question—in fact, an estimate given this week would not be correct next week, for development continues so rapidly that it is impossible to keep track of it. The O J Gude Co, when asked as to possibilities for the future, declined even a conjecture. There seems to be no limit. Each new sign that appears is grander and more ingenious than the preceding one. Advertisers who formerly thought the method very costly are beginning to realize how very inexpensive it is compared with the results secured and, consequently, are willing to pay more and more for elaborate construction and design until what we may expect to see in the electric sign in the future surpasses imagination.

* * *

Motor-Driven Presses in the Evening Post Building

THERE are many reasons why electric motor drive is so well adapted to the operation of printing and publishing establishments. Aside from economy and increased production, there is the advantage of absolute cleanliness, which is so essential where paper is handled, and perfect control. A press can be started or stopped at will from several positions.

The electric motor occupies little floor space and is frequently placed under the floor entirely out of the way. If subsequently desired the motor may be moved from one machine or location to another with the greatest ease.



One of the Great Motor-Driven Printing Presses in The Evening Post Building

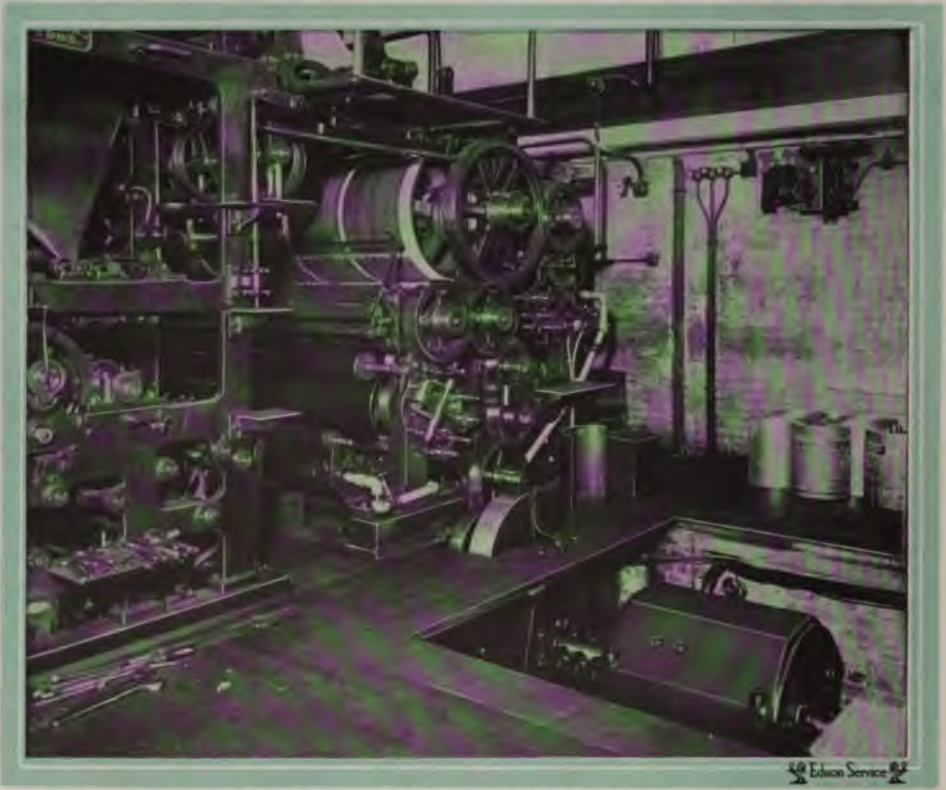
This also applies to the controlling apparatus. Publishers and printers are fast realizing the many advantages of electric drive and there are many notable examples of electrically equipped establishments of this kind.

The accompanying illustrations show two motor-driven presses and a paper reel in the *Evening Post* Building, 20 Vesey Street, where all machines are motor driven.

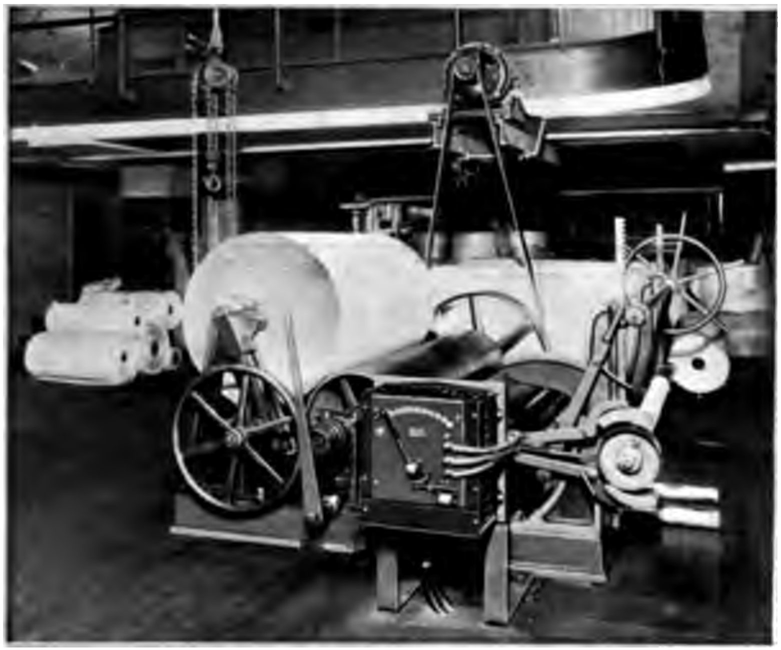
Chlorine Bleach Made by Electricity

A LARGE New York laundry is using, with good results, an apparatus which produces electrolytically chlorine bleach by the disassociation of salt water. This bleach consists of a mixture principally of sodium hypochlorite and caustic soda. The hypochlorite is the active agent when in combination with the soap and oxalic acid used in the washing of linen, and acts as a very strong bleacher and disinfectant.

The apparatus consists of a supply tank which contains the salt solution, about twenty-one pounds of salt in 86.4 gallons of water, an electrolytic vat containing the electrode, and a tank in which flows the resultant liquid. Edison 120-volt service is applied directly to the electrodes through a reversing switch and ammeter. The reversing switch is used to clean off the electrodes by the reversing of the current after every four hours' running. The flow of the salt water is regulated by a valve from the supply tank, and is maintained at a rate which keeps the thermometer in the electro-



Another View of the Press Showing the Motor, Under the Floor, Taking no Floor Space lytic vat at about ninety-five degrees Fahrenheit, which is the best temperature for the proper formation of the hypochlorites. The current is maintained at as near to twenty-five amperes as possible, and is readily adjusted by the quantity of salt added, and by rate of the flow of the solution.



A Motor-Driven Paper Reel in the Evening Post Building

The method as described above, though more expensive than the common way, which consisted of mixing bleaching powder with water, allowing the solution to remain quiet for some time and using the clear liquid from the top for the suds, gives better results, and has many advantages over the old method. The solution as obtained with the electrolytic process is so nearly perfect that very little oxalic acid is required in the washing water. Linen is given a softer finish, and no spots appear, as is sometimes the case when the powder solution is improperly mixed, or when too strong for the soap water; under such conditions holes are often burned in linen and bad stains made.

Labor involved in the two methods is practically the same. The cost of bleaching powder is about $8.00 per month as compared with cost of current and salt at $12.50 per month.

This laundry is doing nearly $10,000 worth of business in a month. The apparatus serves as an advertisement, as it is a neat arrangement set up in the front part of the place, easily seen by customers on entering, and its sanitary properties being readily apparent.

The owner expresses entire satisfaction with the new method, and considers the solution obtained by it very effective. The proportion is one gallon of solution to twenty-five gallons of water for white clothes, and a smaller quantity of the solution for colored articles.

American Monorail Company

BION L BURROWS, former secretary to the New York Rapid Transit Commission, and now president of the American Monorail Company, has announced that he will begin the construction of his monorail line through Pelham Park, connecting with City Island, early this fall.

Permission has been granted the company by the authorities of Pelham Park to run through the park, instead of the highway, thus giving the cars an unobstructed headway; and it is asserted by the Public Service Commission's engineers, who saw the cars operated at the Jamestown Exposition, that a speed of 135 miles an hour will be attained at this point.

If the road at Pelham Park meets with the approval of the public, an application will be made for permission to double-deck both the Second and Third Avenue elevated lines and operate the monorail system on the upper tracks.

A considerable improvement on the existing service is expected.—*Electrical Review and Western Electrician.*

An electric motor directly connected to a machine eliminates the use of shafting and belting, thereby reducing friction loss. Production is increased and economical operation insured.

Edison Service

American Apartment, 134 Lenox Avenue. A Private Plant has recently been abandoned and Edison Service installed

The Philadelphia Electric Company Visits The New York Edison Company

A STEAMBOAT trip around Manhattan, three automobile rides through different parts of the city, a hotly contested baseball game at the American League Grounds and a dinner for 1,700 at Pabst's Harlem Casino was the programme of the day's entertainment given Saturday, September 11th, to 580 employes of the Philadelphia Electric Company.

The Philadelphia contingent arrived in Jersey City at noon, and left for home at 9:25 in the evening.

The officers of the Philadelphia Company who were present at the outing were: Messrs J B McCall, W H Johnson, W C L Eglin, A H Manwaring, J W Sylvester, Thomas Sproule and A H Manwaring.

The Philadelphians were met at Jersey City by the steamer "Majestic," bearing officials and representatives of the New York Edison Company. After a delightful trip about the East and North rivers, the party landed at One Hundred and Fifty-fifth Street and was conveyed in forty automobiles to the American League Baseball Grounds, where a hotly contested ball game resulted in the New Yorkers winning by a score of 5 to 0.

Steamer Majestic receiving the Philadelphians

Baseball Teams of The New York Edison Company and The Philadelphia Electric Company in the American League Park before the Game

Wireless Disease

ACCORDING to M P Bellile, a French naval surgeon on board the "Descartes," which has been engaged in the campaign in Morocco, the members of the ship's company, who were employed in wireless telegraph duty developed various affections in consequence of the action of the Hertzian waves. Most commonly the telegraphists complained of their eyes, a slight conjunctivitis similar to that occurring among those who work with arc lamps being found. Although this of itself was not generally serious, in one case, keratitis was produced, which resulted in a leucoma of the right cornea and consequent impairment of vision. In order to protect the eyes from the ultra-violet rays of electric emanation, it was recommended that yellow or orange glasses should be worn. Not only were the eyes of the operators affected, but two cases of eczema—one of the wrist and one of the eyelid, both very difficult to cure—were seen. One of the officials who had been employed for several years in wireless telegraphy suffered from painful palpitation of the heart, which came on after working for any length of time at the instruments for sending messages. This man was quite free from any organic lesion of the heart. M Bellile is disposed to think that a good many of the cases of nervousness and neurasthenia, which seem now to be getting rather common among naval men, may be due to the work which is being done in wireless telegraphy.—*Electrical World.*

Automobiles Awaiting the Majestic at 153rd Street to convey the Visitors to the Ball Grounds

Dinner at Pabst's, Harlem, given to Visitors from The Philadelphia Electric Company by The New York Edison Company

The Long Distance Columbus Electric

THE desirable pleasure or business man's electric vehicle, from the standpoint of the user—and should be from the standpoint of the garage-man and the electric light company, on account of the satisfaction obtained—is the one that by its scientific construction is enabled to travel the largest mileage with a comparatively small battery. In order to do this it is necessary, first, that a vehicle be constructed light and yet not sacrifice strength and rigidity in obtaining the minimum of weight; second, it must be driven by a motor of the highest efficiency; third, the method of transmission of the power from the motor to the wheels must be of such design that the smallest possible percentage of electric current be lost in driving the mechanism.

It can be readily seen that the smaller the amperage and voltage required to drive an electric vehicle the smaller the battery may be, both in number of cells and weight of plates in each cell. The lighter the battery, the less weight required in frames and axles, and the less effort necessary. Consequently, the less energy required by the elimination of these factors counts rapidly in the extra miles which may be attained when the scientifically constructed is used.

That the Columbus Electric is a properly and scientifically constructed vehicle is shown by the small battery

Columbus Victoria Phaeton

required, its light weight and the great distances it travels. Its battery consists of only twenty-four cells of nine plates each—a very small battery—and although it is only guaranteed to cover seventy-five miles over level roads, yet at least two ladies have driven their machines over the hilly roads between Boston, Mass, and Newport, R I, a road distance of 78 miles, on a single charge of the battery without any special preparation in either case.

Columbus Four-Seat Brougham, Inside Drive

The simplicity of the Columbus, the few parts and the ease with which all of the mechanism may be examined and cared for, are all features which contribute to the attainment of its long mileage. The mechanically or technically inclined person can readily comprehend from the following description why it is that the Columbus is such a long-lived and long-distance electric. The vehicle is built in two distinct parts, the chassis and the body. The chassis is made of pressed steel of channel construction, hot riveted and well reinforced to carry the greatest possible strain with the minimum of weight. The axles are made of the best tubular crucible steel. The springs are of platform type in front and full elliptical in rear, of high-grade steel, the same as used in high-power gasoline cars. On this chassis are mounted the battery in two evenly balanced sections, the motor and countershaft.

The controller and motor are of the latest General Electric type, the most efficient automobile motor made.

Notes on Exhibits for the Third Annual Electrical Show

THE following notes on exhibits include all of the companies that bought space up to the time of going to press. Owing to the very large number of exhibitors it is impossible to give much space to each individual company in this issue. The November MONTHLY will, however, be devoted to the Electrical Show, and every exhibit will be fully illustrated and described.

AMERICAN ELECTRIC LAMP WORKS, Philadelphia, will be in evidence with an interesting exhibit.

THE AMERICAN METAL HOSE COMPANY, 173-177 Lafayette Street, New York. This company will exhibit flexible metal conduits in steel, brass and copper, suitable for cord for window lighting; flexible metal conduit, waterproof, for underground work; flexible metal hose for highest steam pressures, oil, compressed air; seamless flexible copper hose for gasoline; flexible metal hose to stand a pressure up to 10,000 pounds per square inch; flexible arms for electric light fixtures.

THE COLLINS WIRELESS TELEPHONE COMPANY, 54-56 Clinton Street, Newark, N J. The exhibit of this company will contain the latest mechanisms invented by A Frederick Collins for the transmission of speech without wires. Models of Collins' developed instrument will be shown in working order.

CONSOLIDATED TELEGRAPH AND ELECTRICAL SUBWAY COMPANY, 66 Lafayette Street, New York. The exhibit of this company will show specimens of high tension subway construction for electric light and power distribution.

CRANE COMPANY, Chicago. This company will exhibit the following appliances: One six-inch steel gate valve electrically operated with near and remote control; one floor stand with motor and controller; one six-inch emergency butterfly valve with electrical release; one six-inch steel stop and check valve; one twelve-inch steel gate valve; one working exhibit of Cranetilt traps; one cast steel header; samples of pipe flanging; one forged steel header; one pop safety valve; assortment of brass valves, packing, etc.

DUNTLY MANUFACTURING COMPANY, 55 West Forty-second Street, New York. The Duntly vacuum cleaners will be in full operation and demostrate their superior qualities.

ECONOMICAL ELECTRIC LAMP COMPANY, 25 West Broadway, New York. Hylo and Economical turn-down lamps will be the feature of this exhibit. The Economical Company make several styles of turn-down lamps in both plain carbon and tungsten filaments.

THE EXCELLO ARC LAMP COMPANY, 30 and 32 East Twentieth Street, New York. The well-known Excello flaming arc lamps will be featured in this exhibit. These lamps have a wide reputation and are largely used.

Mr Thos A Edison, whose pioneer work in Electrical Engineering, has made possible the great development of to-day

EDISON ELECTRIC ILLUMINATING COMPANY OF BROOKLYN, 360 Pearl Street, Brooklyn, N. Y. An extensive exhibit of household electric appliances will be the contribution of the Brooklyn Edison Company to the Show. There will be an electrical washing machine, clothes dryer, iron, oven, sewing machine motors, refrigerating plant, range, vacuum cleanser, electric fountains, vibrators, radiators, heating pads, lighting outfits for Christmas trees, chafing dishes, coffee percolators, waffle irons, broilers, grids, toasters. Beside all these can be seen a traveler's portable stove and kettle, piano orchestra, etc.

ELECTRIC SUCTION SWEEPER COMPANY, 91 Wall Street, New York. The Hoover Electric Suction Sweeper will be the principal feature of this exhibit. This was described in detail in the July issue of THE EDISON MONTHLY.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia, Pa, will exhibit its well-known line of storage batteries.

ELECTRICAL TESTING LABORATORIES, East End Avenue and Eightieth Street, New York. This company will show a large number of testing instruments in operation and give some interesting high-tension current tests.

THE EMPIRE VACUUM COMPANY, 112 West Thirtieth Street, New York. The above company proposes giving a full demonstration of their vacuum cleaner on carpets and upholstered furniture. They will also have on exhibition a combination motor and pump with vacuum gauge, showing the amount of vacuum obtained.

ELECTRIC CLEANER COMPANY, 1654-1659 Monadnock Block, Chicago, Ill. In this booth will be demonstrated a portable vacuum cleaner that can be operated from an ordinary incandescent light circuit. The machine is very durable, handsome in appearance, and the entire mechanism is enclosed in a highly polished oak cabinet. This cleaner can be used for every possible kind of cleaning where dust and dirt are to be removed.

ELECTRICAL WORLD, 239 West Thirty-ninth Street, New York. This exhibit will consist principally of copies of the *Electrical World* and books upon the subject of electricity. The *Electrical World* is one of the best known technical papers in the country, and all visitors to their booth will be assured a cordial reception.

THE ELECTRIC HOME SUPPLY COMPANY, 45 West Thirty-fourth Street, New York. This company, which deals exclusively in electrical appliances for the home, will show a full line of "Pluto" electric cooking appliances, including the "Pluto" iron which, by means of a back stand, can be turned into a cooking stove. The company will also exhibit the well-known Wirt dialite products, such as the "Dimalite," which makes any lamp a turn-down lamp, being a convenience and money saver.

Fox Brothers & Company 126-130 Lafayette Street, New York, will show Polar flaming arc lamps, radiant miniature enclosed arcs, Fox constant couplings, Fox positive safety windlasses.

General Electric Company, Schenectady, N Y. The General Electric Company's exhibit at The Third Annual New York Electrical Show will be located in the center of the Garden. The visitor's attention is invited to a section of the exhibit where a complete line of up-to-date heating apparatus will be placed for inspection. Demonstrations will be given daily, illustrating the value of the apparatus.

The General Vehicle Company, Long Island City. This company exhibits the various essential features of their well-known line of electric vehicles.

German American Electric Company, 110 West Fourteenth Street, New York. The various types of the Grant flaming arc lamp will be displayed, also a variety of miniature Grant arc lamps, together with Grant tungsten lamps, the latter being an imported illuminant deserving of particular attention. A large and complete variety of carbons for nearly all electrical appliances will also be on exhibition.

The Goulds Manufacturing Company, Seneca Falls, N Y. This company will install a working exhibit consisting of a two-inch by three-inch power pump, electrically operated by belt to a 220-volt, direct-current motor and discharging automatically into a tank forty-eight inches by twenty inches high. In this tank there will be a float switch arrangement, and the pump will be started and stopped by the rise and fall of water in the glass tank.

Mr Charles F Brush, Inventor of one of the earliest commercial forms of the Arc Lamp and prominent in early electrical development

The Heany Fireproof Wire Company, 25 Broad Street, New York. Two very interesting exhibits will be made by these people, one fireproof wire, which has withstood the severest tests and has been approved for Government use. For mill and traction motors this wire is especially adapted—in fact, it is adapted for all apparatus subject to overloads, armature and field coils, coils of arc lamps, etc. The other exhibit will be the Heany tungsten lamps, which have the peculiar merit of burning in any position, and the light may be raised or lowered like gaslight.

Mr Frank J Sprague, whose work in electric railroading has done much to bring it to its present state of perfection

Hurley Machine Company, Flatiron Building, New York. This company will display a complete line of electric washing machines of various sizes. Something new and novel in ice machines will also be shown, and ice will be made during the Show. The machine is attached to lamp socket and is operated by either a one-fifth or one-eighth horse-power motor, depending upon the size.

Keller Manufacturing Company, Philadelphia, Pa. The Santo Vacuum Cleaner and other specialties of this company will be shown in operation.

International Correspondence School, 160 Nassau Street, New York. The work of this institution is so well known that comment is hardly necessary. Bound volumes of the various courses will be shown and specimens of work prepared by students.

Charles L. Kiewert Company, 39 Cortlandt Street, New York. This company will exhibit flaming arc lamps, and particularly the "Alba" flaming arc, which gives a soft light of the purest white. It is especially adapted to stores selling dress goods, as colors are not affected by its rays. It is also a very economical light, giving as bright a light as other arcs using six or eight times as much current.

H Krantz Manufacturing Company. Switchboards, panel boards and accessories will be exhibited by the Krantz Company.

The Lansden Company, Newark, N J. The Lansden Company presents one standard wagon type and one new type platform truck produced especially for factory, terminal, dock and warehouse requirements. The latest construction does not depart in principle from the consistent practice in design originated and employed by the Lansden Company five years ago.

Manhattan Electrical Supply Company, 17 Park Place. The Manhattan Electrical Supply Company, 17 Park Place, with branch stores at 110 West Forty-second Street, and 37 West 125th Street, New York, as well as 188 Fifth Avenue, Chicago, will have an extensive exhibit covering the various lines manufactured by them.

Moore Electric Company of Newark, N J, will exhibit the Moore Electric Vacuum Tube in the lobby of the Garden.

Murphy Electricity Rectifier Company, Rochester, N Y. The Murphy Electricity Rectifier, will be exhibited at the Show. This rectifier embodies many novel features and will be of interest to current users.

The New York Edison Company,

55 Duane Street, New York. This company's space will be devoted largely to industrial applications of electricity. Various manufacturing processes will be in actual operation.

National Electric Lamp Association, Cleveland, Ohio. This company will have on exhibition a complete line of 110-volt tungsten, tantalum and gem lamps, as well as 220-volt tungsten and tantalum lamps; also an interesting display of automobile, train and sign-lighting lamps, tungsten street series lamps and street car tantalums.

The Otis Elevator Company will be represented in the Third Annual Electric Show by an exhibit of an Otis push button control elevator of the "Residence type," and an Otis worm gear traction type machine.

The Otis automatic push button control apparatus will occupy a space in the center of the Garden on the main floor. It is the company's intention to present this year an exhibit of this type of elevator which will be identical in every way with the many installations that are now in successful operation in practically every large city throughout the world.

Pelouze Electric Heater Company, Chicago, Ill. The Pelouze "Universal" electric iron will be the feature of this exhibit. As a traveling convenience it has no equal, and for use in the laundry it is a labor and time saver. The weight is so distributed that the point is heaviest, and even with the current turned on full the handle is always cool. It is economical in operation, a six and a half pound iron costing but three cents an hour to use.

Mr Charles J Van Depoele, who was identified with pioneer electrical work and who did much toward the early development of electric railroading

W P Pressinger Company, 1 West Thirty-fourth Street, New York. A complete line of portable and stationary vacuum cleaners will be exhibited. This company makes a specialty of cleaners, from the smallest portable to the largest stationary plants.

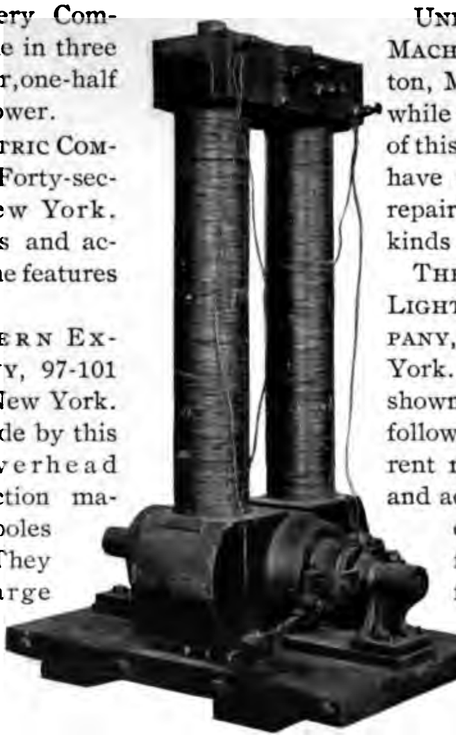
Public Service Corporation of New Jersey, Newark, N J. This exhibit will consist mainly of literature setting forth the advantages of the corporation's service, appealing to the power user, the light user, and the home seeker. Attention will be directed to northern New Jersey's factory and home sites, and the company's ability to supply current for all purposes.

Radio Reflector Company, 1178 Broadway, New York. The well-known "Radio" reflector will be in evidence in the above company's booth. This reflector is so well known that it needs no comment.

Sibley & Pitman, 26 Warren

Street, New York. This company will exhibit a full line of their well-known art glass fixtures.

Arthur C Schmucker, 315 Fifth Avenue, New York. The Thurman Portable Electric Vacuum Cleaner will have its many merits demonstrated in Mr Schmucker's booth. This apparatus is manufactured by the General Compressed Air and Vacuum Machinery Company and is made in three sizes—one-quarter, one-half and one horse-power.



Early Edison Bipolar Generator, Installed on the Steamship Colombia in 1889. Capacity 60 16-Candle-power Incandescent Lamps.

Shelton Electric Company, 105 West Forty-second Street, New York. Electric vibrators and accessories will be the features of this exhibit.

The Southern Exchange Company, 97-101 Warren Street, New York. A specialty is made by this company of overhead wooden construction material, such as poles and cross arms. They will exhibit large frame photographs of their several mills and yards in the South, sections of cedar and yellow pine poles, as well as an entire set of cross arms of all lengths and sizes.

Stanley & Patterson, 23 Murray Street, New York. A full line of the latest electrical supplies will be exhibited in this company's booth.

The Tucker Electrical Construction Company, 110-112 West Thirtieth Street, New York. A practical demonstration of the kinds of construction work approved by the underwriters, covering everything, from exposed work on insulators to the latest form of concealed conduit work, will constitute part of this company's exhibit. It will also include various fixtures and appliances used in connection with the work in the Interborough subway, Hudson tunnel and other railroad work in this vicinity.

United Shoe Repairing Machine Company, Boston, Mass. Repair shoes while you wait is the slogan of this company. They will have an exhibit of shoe-repairing machines of all kinds in actual operation.

The United Electric Light and Power Company, 1170 Broadway, New York. This exhibit will be shown in ten booths as follows: 1, alternating current novelties—spectacular and advertising effects, induced electrical effects use of transformers and other alternating current apparatus; 2, medical and dental apparatus; 3, moving picture apparatus, alternating current types of lamps for photographers, blue prints and commercial applications; 4, household applications of electric current such as irons, toasters, heaters, fans; 5, lamps, tungsten, tantalum, metalized filament incandescent, arcs, vacuum, sign; 6, office and reception room; 7, commercial applications, such as coffee mills, meat choppers, beer pumps, buffers, ice cream freezers, exhaust fans; 8, industrial applications, cloth cutters, machine drills, jig saws, lathes, printing presses, welding, etc; 9, construction work, hoists, drills, concrete mixers, pumps, riveters; 10, elevators, high-speed elevator in operation.

The Watson-Stillman Company, 52 Church Street, New York. Hydraulic tools are the specialty of this company, and a large variety will be on exhibition at the Show.

Roger Williams, 25 West Forty-second Street, New York. Mr. Williams will exhibit at the Electrical Show a complete ironing outfit, consisting of a table, cord support, regulator stand and iron, which will be an exact duplicate of the one hundred and forty-four irons which are at the present time being installed in the Belnord Apartment House, Broadway and Eighty-sixth Street, New York City.

Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa. There will be exhibited in the Westinghouse booth a complete line of small-power motors and electric heating apparatus for domestic use.

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 503—Independence Electric Co
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 433—C T Pinkham & Co
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—The Tucker Electrical Con Co
West 33d St 209—E J Electric Installation Co
West 38th St 72—A J Buschman Co
West 40th St 213—Lord Elec Co
West 42d St 29-33—Germond & Turner
West 42d St 112-114—Oberg & Blumberg
West 42d St 316—J F Baker & Co
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky

East of Broadway and Fifth Avenue

Beekman St 1—Electric Motor Insp & Repair Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—Johnson Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82-84—Mfgrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 119—Kelting Engineering & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Electric Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

Bronx

Baker & Fox—313 East 141st St
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Ave
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
The Westchester Electrical Equipment Co—34 No Broadway
Thomson A—83 Waverly St
Underhill Harry—Bronxville N Y

MANUFACTURERS AND AGENTS

Arc and Mercury Vapor Lamps

Adams Bagnall Electric Co—136 Liberty St
Cooper Hewitt Electric Co—220 West 29th St
General Electric Co—30 Church St
Helios Mfg Co—101 World Building
Jandus Electric Co—114-118 Liberty St
Toerring C J—39 Cortlandt St

Buffers, Polishers and Electro-Dental Machinery

Consolidated Dental Mfg Co—10 East 23d St
The W Green Electric Co—81 Nassau St
Wappler Electric Controller Co—177 E 87th St

Coffee Mills

Deer Co A J—N E Corner 63d St and Broadway
Hobart Elec Mfg Co—24-26 East 21st St

Dealers in Second-hand Machinery

Bender Geo—82-84 Centre St
Borne Chas A—62 Grand St
Dustin Co Chas E—11 Broadway
Electrical Machinery Exchange—140 Nassau St
Graham Jas A—39-41 Cortlandt St
Holcomb D S—60 Centre St
Thompson Joseph H Jr—17 Battery Pl

Decorative Lighting

Elblight Co of America—36 East 23d St
Gudeman & Co—114 East 23d St

Economizers

J H Hallberg—30 Greenwich Ave

Electric Automobiles

Babcock Electric Carriage Co—Broadway & 48th St
Baker Vehicle Co—1790 Broadway
Columbus Buggy Co—153 East 24th St
Couple Gear Co of New York—149 Broadway
Electric Vehicle Co—147 West 55th St
General Vehicle Co—Borden Ave Long Island City
Healey Co—1652 Broadway
Lansden Co—54 Lackawanna Ave Newark N J
Pittsburg Motor Vehicle Co—110 West 34th St
Pope Motor Car Co—Indianapolis
Rauch & Lang (Flandrau & Co)—406 Broome St
Studebaker Bros Co of N Y—B'way and 48th St
Waverly Co—342 Flatbush Ave Brooklyn N Y
Woods Motor Vehicle Co—945 Eighth Ave

Electric Heating and Cooking

American Electric Heater Co—Detroit Mich
The W J Barr Electric Mfg Co—120 Liberty St
Electric Home Supply Co—45 W 34th St
General Electric Co—30 Church St
Prometheus Electric Co—236 East 43d St
Simplex Electric Heating Co—25 W 42d St
Westinghouse Electric and Mfg Co—165 Broadway

Electric Signs

Betts & Betts Inc—1358 Broadway
Bofinger Bros—146 East 42d St
Electric Motor and Equipment Co—232 Market St Newark N J
Empire Electric Sign Co—162 East 118th St
Federal Sign System Electric—317 West 42d St
O J Gude Co—Broadway and 22d St
Thos Hughes—25 E 14th St
Metropolitan Eng Co—1250 Atlantic Ave Brooklyn
Rice Geo H & Co—Flatbush and Fifth Aves Brooklyn
Strauss & Co—Broadway and 47th St

Elevators

American Elevator Co—113-115 Cedar St
Electrically Driven Machine Co—140 Nassau St
Hoffman Co Chas W—223 W 28th St
Kenny Electrical Mfg Co—140 Nassau St
National Elevator Co—24-6 Stone St
Otis Elevator Co—17 Battery Place
Pratt Chas R Constr Eng Co—1123 Broadway
Roberts Jas H—430 W Broadway
A B See—220 Broadway
Sprague Elevator Co—17 Battery Place
Warner Elevator Mfg Co The—1183 Broadway

Fans and Blowers

Crocker-Wheeler Co—32 Cortlandt St
Diehl Mfg Co—561 Broadway
Holtzer-Cabot Electric Co—83 Warren St
Interborough Electric Service Cor—138 Liberty St
Sprague Electric Co—527-31 West 34th St
Wing Mfg Co L J—90 West St

Fixtures

Benjamin Electrical Manufacturing Co—27 Thames St
Black & Boyd Manufacturing Co—23 East 22d St
Caldwell Edward F—36-40 West 15th St
Dale Co The—9th Ave 13th and Hudson St
Enos Co—36 W 37th St
Gilpin V C—120 Liberty St
Gleason Manufacturing Co E P—37 Murray St
Mitchell Vance Co The—836-838 Broadway
Morris Elmer P—78 Trinity Pl
Shapiro & Aronson—67 Centre St
Simes Co The—90 Rose St

MANUFACTURERS AND AGENTS—(Continued)

Sterling Bronze Co—107-113 West 25th St
Tungstolier Co The—27 E 21st St
Western Electric Co—463 West St

Globes and Reflectors

Frink I P—551 Pearl St
Holophane Co—227 Fulton St
Phœnix Glass Co—15 Murray St
Weeks Nelson—217 William St

Motors—General Uses

Bell Electric Motor Co—133 Liberty St
Caldwell & Osterhoudt—232 Fulton St
Crocker-Wheeler Co—32 Cortlandt St
Diehl Manufacturing Co—561 Broadway
Eck Dynamo & Motor Co—19 Murray St
Emerson Electric Mfg Co The—50 Church
Garwood Electric Co—149 Broadway
General Electric Co—30 Church St
Haire Arthur W—10 E 42d St
Holtzer-Cabot Electric Co—83 Warren St
MacGovern Archer & Co—114 Liberty St
Mechanical Appliance Co—30 Church St
Northern Electrical Mfg Co—29 Broadway
Rossiter MacGovern & Co—90 West St
Roth Bro & Co—136 Liberty St
Sprague Electric Co—527 West 34th St
The Fidelity Elec Co—711 Broadway
Western Electric Co—463 West St
Westinghouse Elec and Mfg Co—165 Broadway

Motor Inspection, Maintenance, and Repairs

Bell Electric Motor Co—133 Liberty St
Borne C A—62 Grand St
Chester Co William S—43 East 8th St
Electric Elevator & Machinery Maintaining Co—1 Beekman St
Graham Bros Co—662 Hudson St
Maintenance Co The—54 Franklin St
Oneida Electric Co—300 West Broadway
Reilly's Sons James Co—122 Centre St

Pumps

Dayton Hydraulic Machinery Co—50 Church St
D'Olier Engineering Co—114 Liberty St
Goulds Mfg Co—16 Murray St
Holland Machine Co—51 Cliff St
Lawrence Machine Co—39 Cortlandt St
Platt Iron Works The—100 Broadway
Quimby William E Inc—8 West 29th St
Rumsey Pump & Machine Co—73 Warren St
Watson Stillman Co—50 Church St
Wood & Co R D—400 Chestnut St Phila

Refrigeration

De La Vergne Machinery Co—Foot of E 138th St
Frick Co—Waynesboro Pa
York Manufacturing Co—York Pa
Westerberg & Williams—120 Liberty St

Switch and Distributing Boards

Anderson Mfg Co A & J M—135 Broadway
Automatic Switch Co—131 Liberty St
Cutler Hammer Mfg Co—50 Church St
Krantz Mfg Co—160 7th St Brooklyn
Metrop'n Switchboard Co—536-540 W 23d St
National Switchboard Co—561 W 58th St
Pringle Electrical Mfg Co The—39-41 Cortlandt St
Rall Frederick—19 Park Pl
Tibbals & Co E C—1199-1201 Atlantic Ave Brooklyn
Trumbull Electric Mfg Co—136 Liberty St
Walker Electric Co—39 Cortlandt St
Wirt Electric Co—39 Cortlandt St

Vacuum Cleaners

Duntly Manufacturing Co—Marbridge Bldg
Empire Vacuum Co—112 West 30th St
Hoover Electric Suction Sweeper Co—91 Wall St
Invincible Electric Renovator—1133 B'way
N Y Vacuum Cleaner Co—Marbridge Bldg
Numaticon Co—47 West 42d St
Peerless Vacuum Cleaner Co—166 67th St, Brooklyn, N Y
Pressinger Co, W P—1 West 34th St
Spencer Turbine Cleaner Co—1 Madison Ave
The Immaculator—192 West 10th St
The Cleanator—39 Cortlandt St
The Little Giant Cleaner—Pacific Suction Sweeper Co 322 Post St San Francisco Cal
The Positive Vacuum Cleaner Co—Marbridge Bldg
Thurman Vacuum Cleaner Co—315 Fifth Ave
The Vortex Vacuum Cleaner—Boston Mass
Victor Vacuum Cleaner Co—2 Manhat'n Av

SUPPLY DEALERS

Brown Wm S—3 West 29th St
Bunnell & Co J H—20 Park Place
Burnet Co The—121 Maiden Lane
Cary Co Edw E The—59 Park Place
Chapin Chas E—27 Thames St
Fletcher Stanley Co—32-34 Frankfort St
Fullerton Case Co—109-115 West 26th St
Goudey-McLean Co—120 Liberty St
Irish W F Electric Co—60 Cortlandt St
Leveridge Charles W—183 Greenwich St
Lowe Electric Co—54 Vesey St
Manhattan Electric Supply Co—17 Park Pl
Ostrander W R—22 Dey St
Roberts & Bros Geo I—471 4th Ave
Roeser & Sommer Co—386 2d Ave
Royal-Eastern Electrical Supply Co—114 West 27th St
Sibley & Pitman—26 Warren St
Stanley & Patterson—23 Murray St—27 Warren St—329 Fourth Ave
Storage Battery Supply Co—239 East 27th St
Thomas & Betts Co—299 Broadway
Wappler Electric Controller Co—177 East 87th St
Western Electric Co—463 West St
Wood C D Jr—136 Liberty St

THE EDISON MONTHLY

VOLUME II NUMBER 6

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EDITORIAL

THE EDISON MONTHLY
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THE NEW YORK EDISON COMPANY
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ANTHONY N BRADY, 54 Wall Street
Vice-President and Treasurer
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Secretary
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The Edison Monthly will be sent regularly to any one desiring it for twenty-five cents yearly, merely covering the mailing costs. On the request of any Edison customer the subscription price will be added to one monthly bill in each year.

THE Electrical Show, which was held in Madison Square Garden, October 11 to 21, marked a crowning event in the history of such exhibitions. From the standpoint of attendance, excellence of exhibits, beautiful lighting and decorations and general interest displayed there has been no parallel in the history of the electrical industry.

* * *

To those who did not visit the Show a mere description gives but a meagre idea of its extent and beauty. Especial attention was given to the application of electric motor drive in the industries, and there were many working exhibits representing all classes of manufacturing. Electric illumination and electric heating also played an important part among the exhibits.

There was everything electrical for the household and the merits of electricity in the home were fully demonstrated.

The attendance was so great that it became necessary to close the doors during several evenings, and it is safe to say that a lasting memory of the beautiful panorama that the Garden presented will be impressed on the minds of the visitors.

It is with regret that we are unable to give more space to each exhibit, but on account of the great number of companies taking part in the Show it has become necessary to give brief mention only, which will be found in the following pages:

* * *

A souvenir of any notable occasion or place is always interesting, but a souvenir of such an occasion as the Electrical Show possesses triple value and interest when the recipient has seen it made by electrically operated machinery right before his eyes. This was done every hour of every day of the ten days that the Show was open.

* * *

When wireless telegraphy was a new wonder it seemed as if science could go no further with electricity. Now, however, we have the wireless telephone and other electric marvels accomplished without the use of wires. At the Electrical Show these were demonstrated before visitors every day. They saw with their own eyes, and heard with their own ears things that even twenty-five years ago might have come under the ban of witchcraft.

Think of a balloon's movements controlled by wireless! Think of power transmitted by wireless! Either seems too great a miracle to be grasped by the mind, yet both were performed daily at the Electrical Show. People saw the effect, though not the cause, and marveled.

◆

It will be noted with interest that a movement is now on foot to greatly increase the lighting of Fifth Avenue. The plan long ago agitated by the Fifth Avenue Association, composed of business men and residents, to make Fifth Avenue one of the most brilliantly lighted thoroughfares in the world, took concrete form recently when the committee on lighting of the association met.

◆

During a coal strike or coal famine it is easy to see why a manufacturer has to stop producing for several days, or perhaps weeks, until he can buy some coal at an exorbitant price. The New York Edison Service is so safeguarded by an enormous reserve supply of coal that continuity of current supply is assured. Consequently if manufacturers' plants were equipped with electric motors using Edison Service they could be operated at a cost which would enable the owners to sell their commodities for less money than competitors who might have been affected by the coal market.

◆

Another point to consider is that engines, boilers and coal supply occupy valuable space, whereas electric motors require but little room and may be mounted on the wall or suspended from the ceiling. In a great many instances the motors are directly attached to the machines they operate, which is the ideal method. If profitable use could be made of the space occupied by engines and boilers, then this advantage becomes manifest.

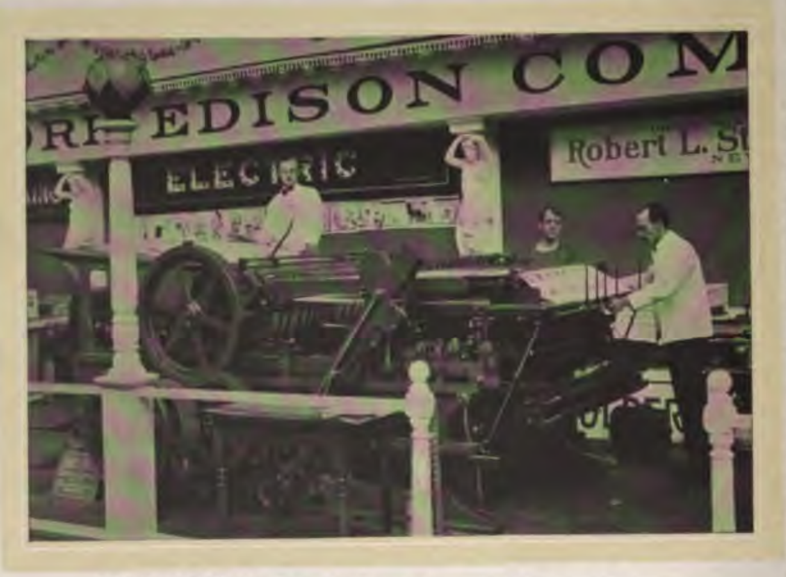
Again, with mechanical drive an accident in any part of the main line shafting, pulleys, belts or hangers means the shutting down of an entire plant until the trouble is remedied. If the plant were electrically equipped an accident to any one motor would affect that one alone and would not disturb any other portion of the plant.

Another fact is obvious, too, and that is that in a mechanically driven plant the product is exposed to great damage from dust, soot, smoke and cinders, not to mention grease and oil. The electric motor eliminates all such damage and annoyances.

Notes on Exhibits at the Third Annual Electrical Show

A Portion of the Printing Plant in The New York Edison Company's Exhibit

THE AMERICAN METAL HOSE COMPANY, 173-177 LAFAYETTE ST, NEW YORK.—This company exhibited flexible metal conduit in steel, brass and copper, suitable for cord used in window lighting; waterproof flexible metal conduit for underground work; flexible metal hose for high-pressure oil, steam and compressed air; seamless flexible hose for gasoline; flexible metal hose for pressure up to 10,000 pounds per square inch; flexible arms for electric light fixtures, and the Von Brackdorff system of heating apparatus.



Whitlock Cylinder Press in Operation. The New York Edison Company's Exhibit

---

USE EDISON SERVICE. IT IS RELIABLE.

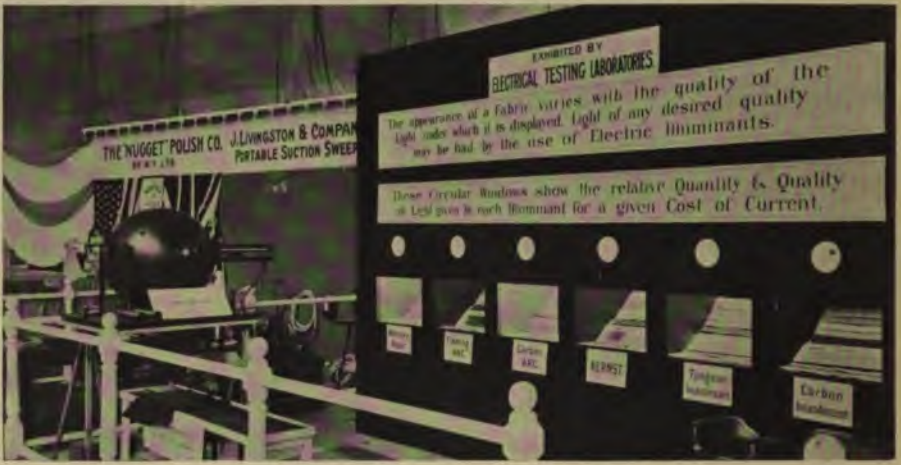
Folder and Monotype Machine in Printing Plant

American Electric Lamp Company, 153-159 Jefferson Street, Philadelphia, Pa.—Tungsten, tantalum and carbon filament lamps of various candle-power and voltages were the features of this exhibit. Aside from the lamps, a set of views showing various parts of the company's factory were shown.

Automatic Electric Washer Company, Newton, Iowa, exhibited several electric washers which comprise all that can be demanded of such a machine. These washers were substantial, of ample capacity, and equipped with powerful electric motors and ball-bearing, reversible wringers.

The Baltimore Enamel and Novelty Company, West Broadway, New York, exhibited porcelain enameled iron reflectors for arc lamps, incandescent lamps, etc. This company also manufactures electric storage battery jars,

Watson-Stillman Hydraulic Press on which New York Edison Souvenir Watch Fobs Were Made


EXHIBITED BY
ELECTRICAL TESTING LABORATORIES
The appearance of a Fabric varies with the quality of the light under which it is displayed. Light of any desired quality may be had by the use of Electric Illuminants.
These Circular Windows show the relative Quantity & Quality of Light given by each Illuminant for a given Cost of Current.
NERNST
Carbon
THE "NUGGET" POLISH CO.
J. LIVINGSTON & COMPANY
PORTABLE SUCTION SWEEPER

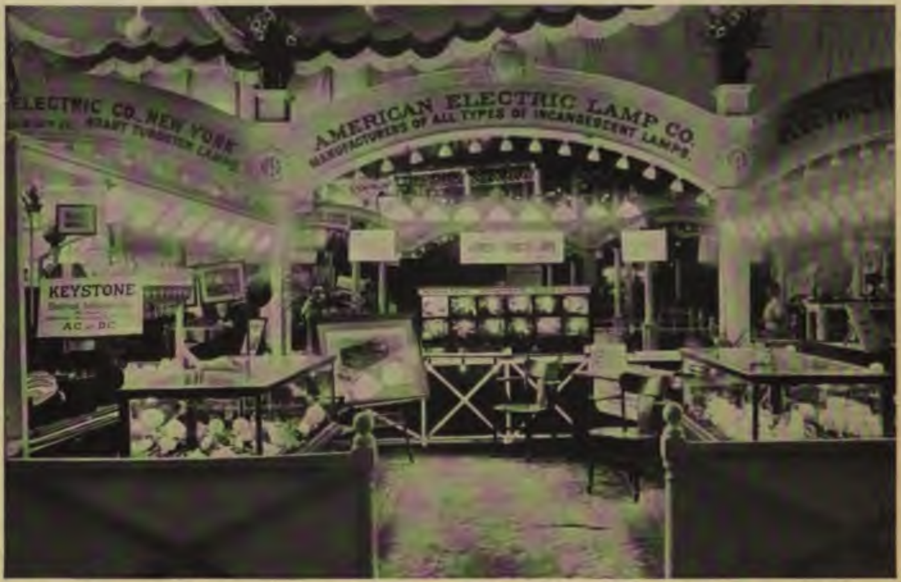
A Portion of the Exhibit of the Electrical Testing Laboratories

UNITED SHOE REPAIRING MACHINE CO.
GOODYEAR WELT SHOE REPAIRING SYSTEM

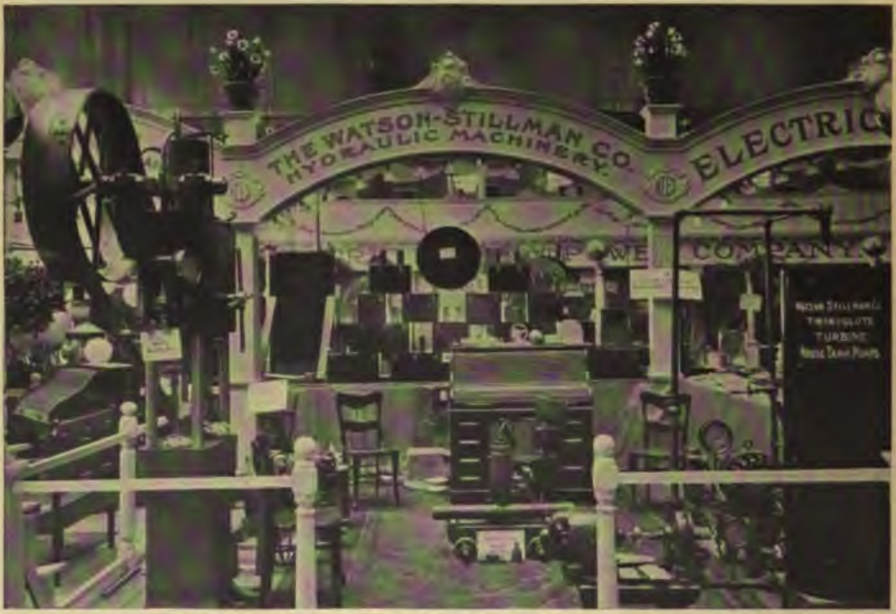
The United Shoe Repairing Company's Exhibit

Exhibition of the National Ball Game Company. One of the features of the Show

The Electric Tea Room


ELECTRIC CO. NEW YORK
AMERICAN ELECTRIC LAMP CO.
MANUFACTURERS OF ALL TYPES OF INCANDESCENT LAMPS.
KEYSTONE
AC or DC

American Electric Lamp Company's Booth, where a complete line of carbon and tungsten filament lamps was displayed



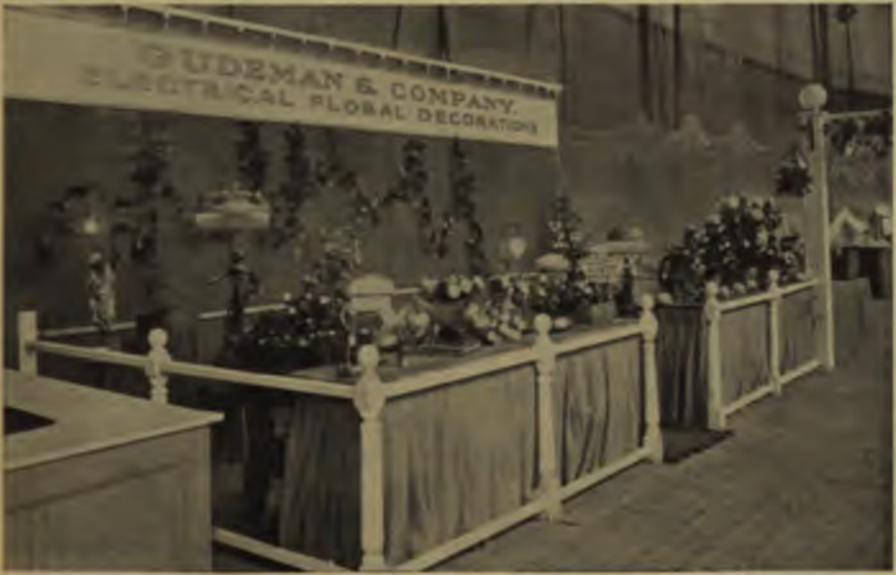
The Watson-Stillman Company's Exhibit of Hydraulic Tools and Machinery

Electric Washers in the Hurley Machine Company's Booth

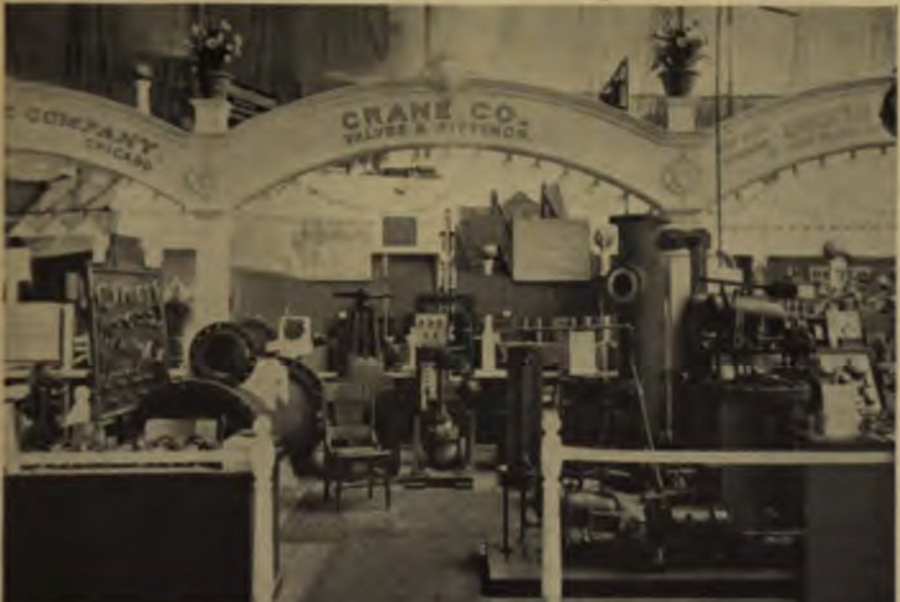
Large Air Compressor Used in Construction Work—a part of the Consolidated Telegraph & Electrical Subway Company's Exhibit

Various Types of Storage Batteries in The Electric Storage Battery Company's Booth

The Electric Cleaner Company's Exhibit of the Positive and the Reliable Vacuum Cleaners



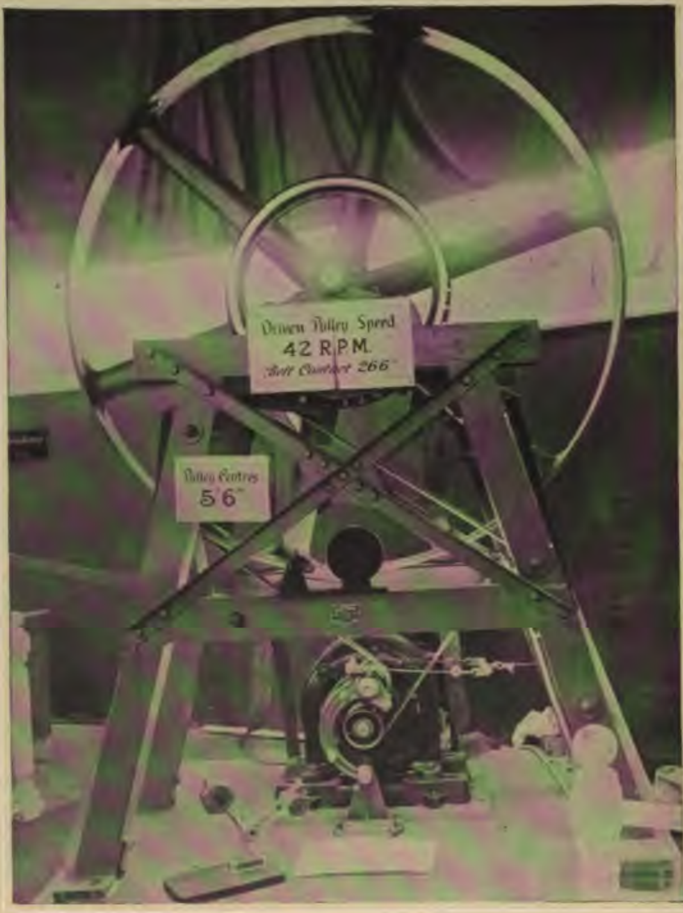
Electrical Decorations in Gudeman & Company's Booth



Valves, Fittings and Accessories Displayed by the Crane Company messenger call box shells, enameled iron advertising signs and agency signs, all of which were on exhibition.

Advertising Novelties in the Feature Advertising Company's Space

CHARLES BIELE, NEW YORK, demonstrated his Cafe Savoy Coffee with electric percolators. A miniature electric coffee roasting plant and an electric grinder were also shown.



Specimen of "Lenix" Drive Exhibited by the F L Smidth Company

THE CONSOLIDATED TELEGRAPH AND ELECTRIC SUBWAY COMPANY, NEW YORK, exhibited specimens of electric subway construction, and accessories used in connection with their maintenance.

THE COLLINS WIRELESS TELEPHONE COMPANY, NEWARK, N J.—This exhibit

Attractive Exhibit of The National Electric Lamp Association

consisted of the latest mechanism invented by A Frederick Collins for the transmission of speech without wires. Evolution of means of communication has been rapid within the past few years, as is shown by the wireless telephone. The Collins' developed instrument was exhibited in working order. Visitors were permitted to perform for themselves the miracle of talking through solid walls without wire connections of any kind. Words spoken into the transmit-

Air Ship of the Dirigible Balloon Type whose movements were controlled by wireless

Reception Booth of The New York Edison Company in the Gallery of the Garden

Electrically Operated Shredded Wheat Biscuit Plant in The New York Edison Exhibit

Embroidery Made on Electric Sewing Machines in The New York Edison Exhibit

Electric Coffee Making and Chickens Hatched by Electricity in The New York Edison Exhibit

Electric Truck and Vehicles Shown by the Lansden Company

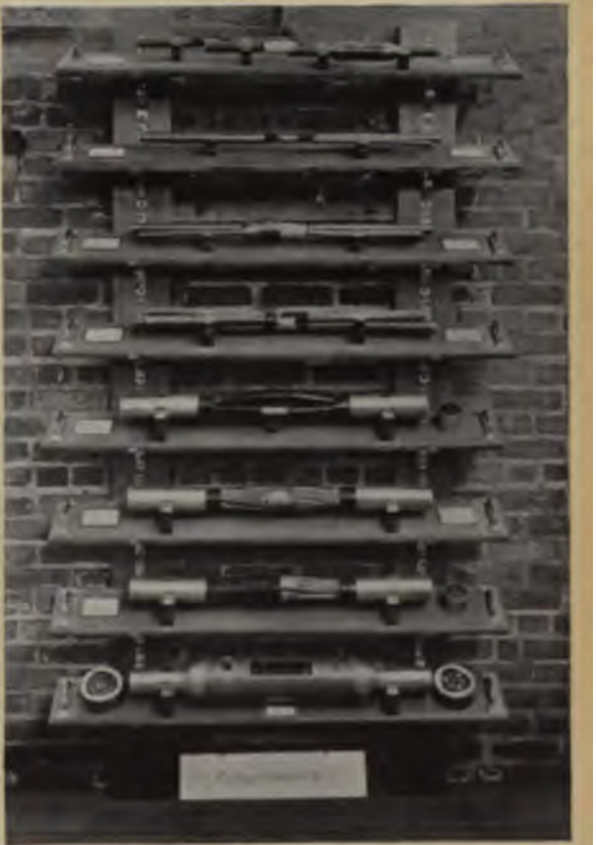
ter were projected by electric energy, and waves of ether carried the sounds through any sort of obstruction. In his long distance tests the inventor used 500 volts increased to 5,000 volts by a direct connected motor-generator set designed to stand high potential strains. This current energized a self-regulating arc lamp having revolving electrodes. A blow-out magnet was adjusted to the oscillation arc at right angles and one end of the magnet was placed in series with the positive wire and the other coil in circuit with the negative wire. The magnet fixed the arc in the best position and the coils served to choke back the oscillations from

Electrically Operated Pumps and Accessories in The Goulds Manufacturing Company's Booth

Electric Elevator Exhibited by the Otis Elevator Company

the high-tension generator. Across the 500-volt direct-current circuit the terminals of a small transformer coil were shunted, but a condenser was interposed to check the high-voltage direct current from flowing through it. The primary of the transformer was connected in series without limit, and this was illustrated by a wealth of photographs taken of actual scenes where the wireless was used in various parts of the globe. Tests were made at right angles with the current of the Marconi wireless telegraph, showing that transmission with Collins wireless instruments is impervious to interference.

Como Electrical Company, Spring Lake, N J, exhibited several types of the Heckley Electrolytic Rectifier, a very successful instrument for charging batteries, arranged to take care of the heat generated in the electrolytic cells, also to keep the solution circulating. This prevents stagnation and the possibility of weakening one portion of the electrolyte more than another. It also allows of a quantity of solution to be used far in excess of any other cell devised. The action is automatic, as the electrolyte is heated below, at once rising to the top, the cool portion falling to take its



Specimens of Modern Cable Joints in the Consolidated Telegraph & Electric Subway Company's Booth place. But as the heated portion rises it comes in contact with the radiating surface or portions connected therewith, and the heat is communicated to them, and thence to the atmosphere.

Complete Electric Laundry with Dryer Manufacturing Company's Dryer and Simplex Heating Devices

CRANE COMPANY, CHICAGO ILL, exhibited the following appliances: steel gate valve operated with near and remote control; floor stand with motor and controller; emergency butterfly valve with electrical release; steel stop and check valve; working exhibit of cranetilt traps; cast steel header; samples of pipe flanging; forged steel header; pop safety valve; assortment of brass valves, packing, etc.

Attractive Exhibit of Electric Signs made by the Metropolitan Engineering Company

THE DUNTLY MANUFACTURING COMPANY CHICAGO, ILL., displayed a number of pneumatic cleaners, a

Fox Brothers & Company's Exhibit of Arc Lamps and Accessories

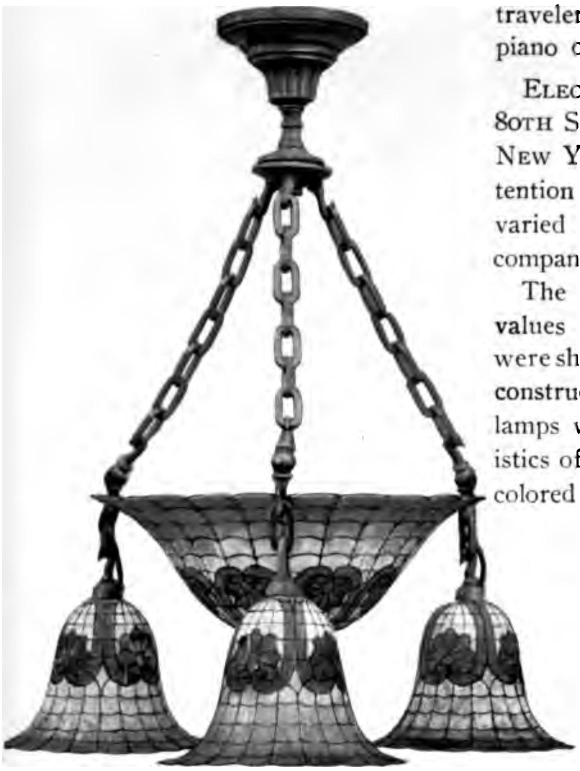
scrubbing machine and a small gasoline-electric generator set capable of lighting eight lamps and giving the necessary electric energy for operating the sweeping machines.

DOSSERT & COMPANY, 242 WEST 41ST STREET, NEW YORK, exhibited a complete line of their solderless connections for construction work of all kinds.

Marconi Wireless Station

ELECTRICAL WORLD, 239 WEST 39TH STREET, NEW YORK.—This exhibit consisted of copies of the *Electrical World*, one of the best known technical journals in this country, and books upon the subject of electricity published by the McGraw Publishing Company, who print the *Electrical World*.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BROOKLYN, 360

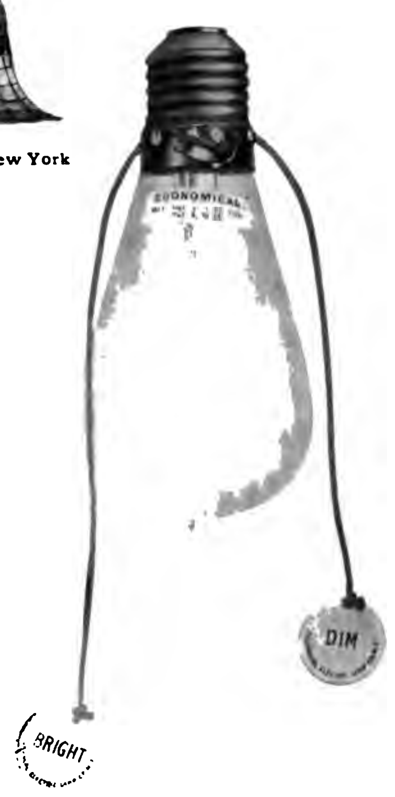


Electrolier made by Sibley & Pitman, 26 Warren St, New York

PEARL STREET, BROOKLYN.—The object of this company's exhibit was to show what electricity could do in the home. There were shown in operation an electrical washing machine, an electric clothes dryer, an electric iron, an electric oven with glass front, lighted inside so that the cook can watch what is baking without opening the door; sewing machine with motor, a refrigerating plant, an electric range, vacuum cleaners with numerous attachments for all sorts of cleaning, electric fountains, with colored lights; massage vibrators, portable electric lamps, electric radiators, heating pads, Christmas tree outfits, chafing dishes, coffee percolators, waffle irons, broilers, grids and toasters, traveler's portable stove and kettle, piano orchestra.

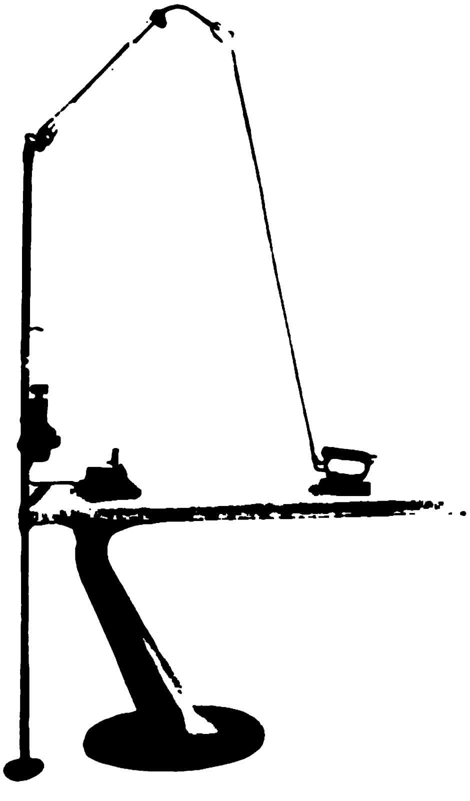
ELECTRICAL TESTING LABORATORIES, 80TH STREET AND EAST END AVENUE, NEW YORK.—This exhibit directed attention to three of the many and varied classes of testing which this company undertakes commercially.

The relative efficiencies and color values of modern electric illuminants were shown with the aid of specially constructed booths which concealed the lamps while displaying the characteristics of the light. The appearance of colored fabrics when illuminated by the lamps affords an interesting study of light quality. The relative bright-



Type of Turn-Down Lamp. Exhibited by the Economical Electric Lamp Company, New York ness of screens illuminated by the lamps illustrated the great progress that has recently been made in the efficiency of electric illuminants. An exhibit was made of a complete installation of wire testing machinery in operation, showing the laboratory's methods of making tensile, torsional and electricity tests; also apparatus for the tests of conductivity and insulation resistance. A few of the reference standards used by the laboratory were also made.

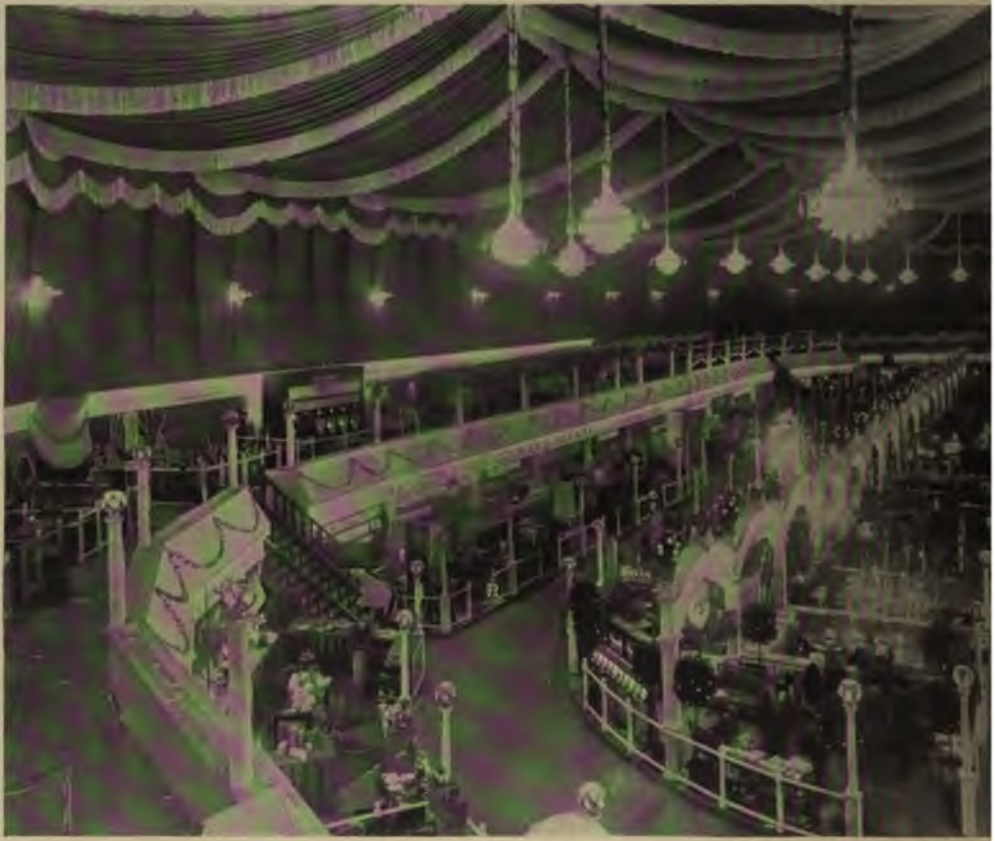
The Excello Arc Lamp Company, New York, displayed the various types of direct-current and alternating current arc lamps manufactured by it, including alternating current lamps for operating four in series on 220-volt circuits with enclosed compensating choke coil. A decorative brass-covered lamp with colored globe was on exhibition, and a new quartz lamp was introduced as a novelty. The latter lamp is not being placed on the market, but was exhibited merely to show recent developments in that style of lamp.



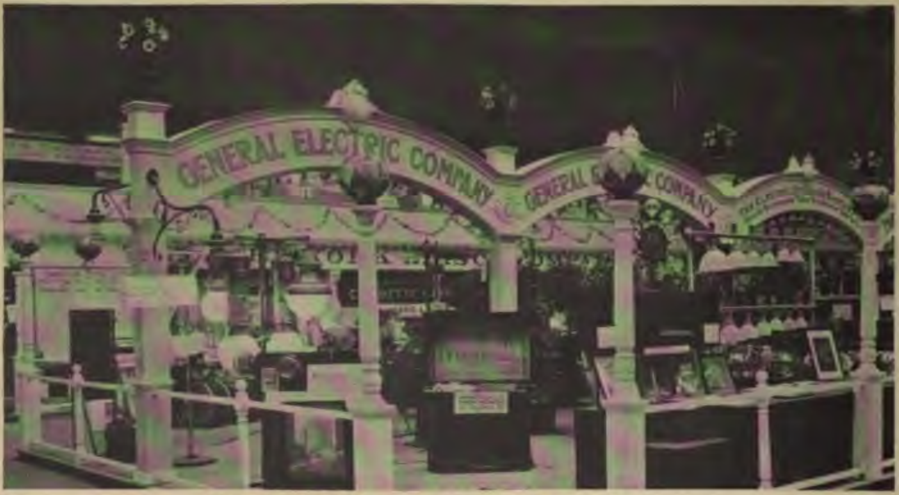
Simplex Electric Iron Stand. Exhibited by Roger Williams, New York

Three-Light Bronze Portable. Made by Sibley & Pitman, 26 Warren Street, New York

Electrical Review and Western Electrician, Marquette Building, Chicago, Ill.—The space allotted to this periodical was fitted up as its headquarters at the Show where the president of the company, the Eastern manager and the managing editor were pres-



Panoramic View of Madison



Extensive Exhibit of The General Electric Company

ing the Electrical Show

The Westinghouse Electric and Manufacturing Company's Attractive Exhibit

Hoover Electric Suction Sweeper. Made by Hoover Electric Suction Sweeper Company, New Berlin, Ohio

ent, and its canvassing and subscription agent. Copies of the magazine were distributed.

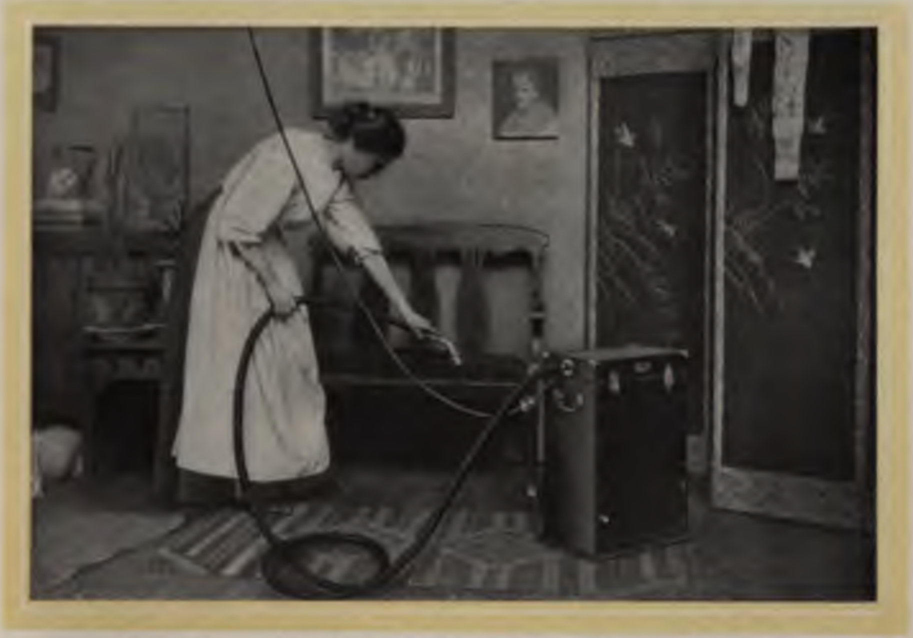
The Electric Home Supply Company, 45 West 34th Street, New York.—As its name implies, this concern deals exclusively in electric appliances for the home. A full line of "Pluto" electric cooking utensils was exhibited, and a "Pluto" iron, which, by means of a back stand, can be turned into a cooking stove. The well known Wirt dialite products were also shown, among them the "Dimalite," which coverts any electric lamp into a turn-down lamp — a convenience and money saver; Wirt charging rheostats and dimmers, and dialite fixed resistance units; also the new Wirt dialite insulating joint, recently approved by the underwriters. Free demonstrations of hair-dressing were given, at which the "Electrocurl" curling iron was used. This is manufactured by the Vulcan Electric Heating Company, of Chicago, and

Thurman Electric Vacuum Cleaner. Manufactured by General Compressed Air and Vacuum Machinery Company, St Louis, Mo gives a continuous and steady heat, saving the hair and costing only a third of a cent an hour to use. There were also working demonstrations of the Vulcan electric soldering, branding and capping irons. A completely furnished, electrically lighted miniature house about four feet high occupied the center of the booth.

THE EMPIRE VACUUM COMPANY, 112 WEST 30TH STREET, NEW YORK, gave a demonstration of their vacuum cleaner on carpets and upholstered furniture. They also had on exhibition a combination motor and pump with vacuum gauge, showing the amount of vacuum obtained. In addition there were various types of cabinets and renovators or nozzles showing the methods of dust separation.

ELECTRIC CLEANER COMPANY, CHICAGO, ILL.—This company exhibited their "Positive" electric vacuum cleaner and gave demonstrations of its working qualities. The "Positive" is a portable machine and of handsome appearance, as the entire mechanism is enclosed in a highly polished oak cabinet.

ELECTRIC SUCTION SWEEPER COMPANY, 91 WALL STREET, NEW YORK. This company exhibited their sweepers in operation.



Empire Vacuum Cleaner, made by Empire Vacuum Company, New York

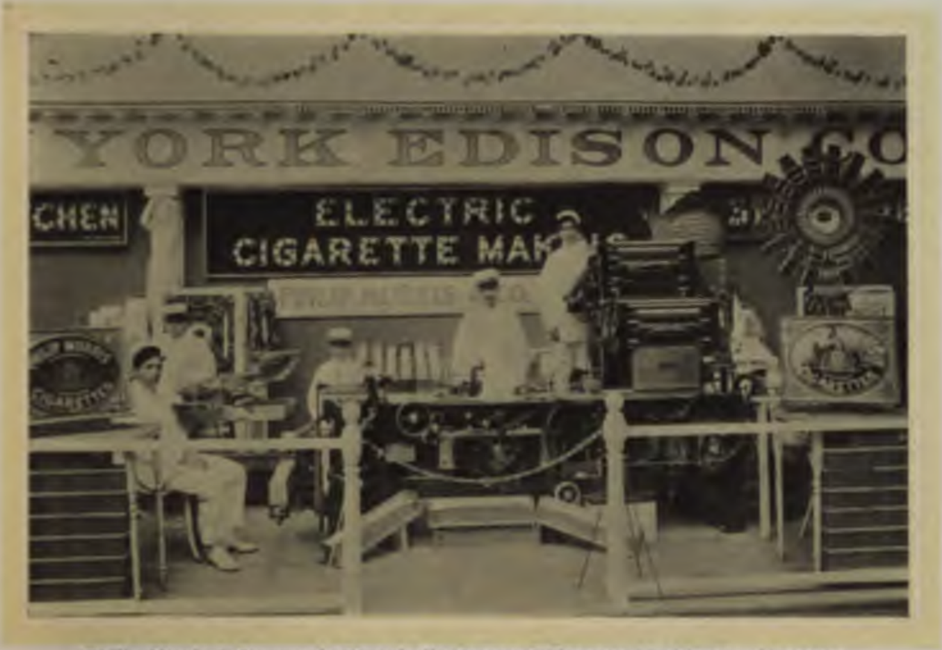
ECONOMICAL ELECTRIC LAMP COMPANY, 25 WEST BROADWAY, NEW YORK, manufacturer of turn-down lamps, had on exhibition the "Hylo" and "Economical" pull-string, turn-bulb, and long distance lamps, and also the "Hylo-Economical" tungsten lamps. By means of automatic machines the large and small filaments of the lamps were switched in and out of

Cafe Savoy Coffee Made in Electric Percolators by Chas. Biele

circuit, so that the relative intensity of light from each was shown.

Electric Storage Battery Company, Philadelphia, Pa, showed one element of type H-131 exide battery, such as installed at the Sixteenth Street Station of The New York Edison Company; nine standard sets of vehicle batteries, as built for the

Electric Washing Machines Shown by the Automatic Electric Washer Co



Philip Morris & Company's Electrically Operated Cigarette Machinery. Cigarettes were manufactured daily during the Show

Everything Electrical for the Home in the Electric Home Supply Company's Booth electric vehicle companies; exide sparking duplex and emergency sparking batteries, car-lighting batteries, a two-cell unit for this purpose, automatic electric head lamps operated by exide sparking batteries, and a casting mold electrically operated for casting souvenirs, consisting of lead discs bearing the imprint of the company.

The Collins Wireless Telephone in Operation

The Very Complete and Attractive Exhibit of the United Electric Light & Power Co

Large Display of Santo Vacuum Cleaners Made by the Keller Manufacturing Company

Exhibit of The Edison Electric Illuminating Company of Brooklyn, which attracted much attention

Specimens of Modern Electrical Construction Work Displayed by the Tucker Electric Construction Company

Feature Advertising Company, Metropolitan Tower, New York, showed a number of "Ad-o-scopes." The window ad-o-scope was fifty inches long, forty-one inches wide and fifteen inches high, and weighed approximately 150 pounds. By means of stereoscopic projections and colors a manufacturer may show to a consumer each step in the manufacture of an article, the purity of material, cleanliness in preparation, and other points of interest. In addition it is possible to show twelve panoramic cards of the standard street car style. The theatre ad-o-scope is intended to show living pictures of artists in colors illuminated from behind. This machine is fifty inches high, forty-two inches wide and eighteen inches deep, and by its use it is possible to show in panoramic photographs the portraits of the artists in the production, and by the stereoscopic projections the complete play, scene by scene and act by act. The slides are turned by an electric motor.

Sunray Arc Lamps Exhibited by the Sunray Electric Lamp Manufacturing Company

Display of the Excello Arc Lamp Company

THE GOULDS MANUFACTURING COMPANY, 16 MURRAY STREET, NEW YORK, featured as its main exhibit a single acting triplex power plunger pump mounted on a bed plate with an adjustable belt idler and belt connected to a 220-volt, three-quarter horse-power Crocker-Wheeler motor. The pump was fitted with a by-pass and relief valve arrangement, so that in case a valve is shut or a stop occurs in the discharge line, the valve will open and allow the water from the pump to pass away without increasing the pressure. The pump was shown in operation taking water from a tank beneath a table and discharging it into a glass aquarium. It was arranged to start and stop automatically by the rise and fall of the water in the tank. The tank switch was mounted on a marble panel at the back of the outfit, and on this panel were mounted an ammeter, a pressure gauge, knife switch and fuses. A valve on the discharge line permitted the gauge to record the pressure against which the pump is operating, while the ammeter showed the amount of current the pump used. A number of pumps lying idle, together with framed photographs of the pumps, were on exhibition.

Grant Flaming Arc Lamps Shown by the German American Electric Company

The Studebaker & Company's Exhibition of Electric Automobiles

GERMAN-AMERICAN ELECTRIC COMPANY, 110 WEST 14TH STREET, NEW YORK.—The various types of the Grant flaming arc lamp were displayed, and also a variety of miniature Grant arc lamps, together with a number of Grant tungsten lamps, the latter being an imported illuminant. A large and complete line of carbons for nearly all electrical appliances were also on exhibition. Some automatic hanging devices were also shown.

GENERAL ELECTRIC COMPANY, SCHENECTADY, N Y, showed a complete line of heating apparatus, flaming arc lamps, intensified arc lamps and the company's multiple automatic cut-out and hanger for rope suspension. An interesting feature was a wire-braid-

Vacuum Pumps Exhibited by the Wheeler Manufacturing Company and the Vacuum Engineering Company

ing machine in operation, showing the method of making cord for heating devices. In the center of the booth were General Electric motors, operating Ingersoll-Rand drills, and a Bridgeport Safety Wheel Company's grinder. A line of motors was also shown, not in operation, so as to admit of close inspection. In addition to the above there was displayed a complete line of fan motors, rheostats, circuit breakers, meters, instruments, a multiple rectifier, a 10,000-volt lightning arrester, and a complete line of automobile accessories. The General Electric Company also exhibited its complete line of tungsten and tantalum lamps, including the new 200-volt and 250-volt types. A circle of lamps surrounding the well known General Electric monogram demonstrated the ability of the lamps to burn in any position. Included in the exhibit was a photometer, comparing a 32-candle-power, 110-watt carbon lamp with a 40-watt tungsten lamp, each lamp taking power through a testing wattmeter, thereby showing

The Statue of Liberty as it Appeared Illuminated for the Hudson-Fulton Celebration

Main Street at Getty Square, Yonkers, during the Hudson-Fulton Celebration

Manor Hall, Yonkers

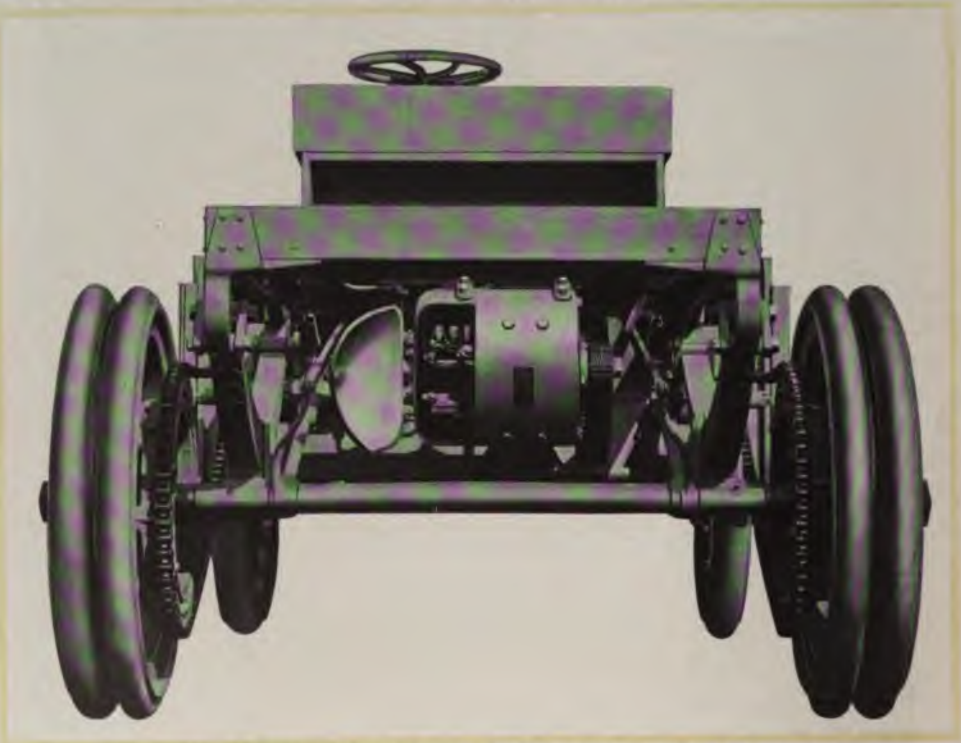
the different power consumptions for equal candle-power. Special attention was called to the comparison of quality of light illustrated by this apparatus. The 4-candle-power, 5-watt tungsten sign lamps were shown in operation, and the striking white brilliancy was an attractive feature. A comparison board with a wattmeter showed that ten tungsten sign lamps are equivalent to three carbon sign lamps in power consumption, but far superior in character and amount of illumination. Automobile lighting by tungsten lamps was given a prominent place in the exhibit, a model dashboard, with head lamps, side lamps and tail lamps being shown. The tungsten head lamp had a spiral filament of high intrinsic brilliancy, accurately located in the focus of a parabolic mirror, and gave an intense forward illumination fully equal to the ordinary acetylene head lamps. The outfit was operated by a 120-ampere-hour storage battery and the convenient switching arrangement for controll-

Office of Yonkers Electric Light & Power Co

Carnegie Library, Yonkers

ing all the lamps independently from the dashboard was shown. The automobile lamps are made with a sturdy filament to withstand the severest shocks. A very complete line of miniature and low-voltage tungstens was also exhibited. The company's tungsten street series lamps were shown on brackets, supported from the pillars of the booth. Numerous photographs of notable installations using thousands of tungsten and tantalum lamps gave the public striking examples of the degree to which these lamps have superseded the carbon lamps.

SUNRAY ELECTRIC LAMP MANUFACTURING COMPANY, NEW YORK, had on exhibition a rack containing seven lamps, six of which show the progressive stages of the arc during the life of the electrode, demonstrating clearly the short arc travel and the small loss of light from the deposit on the globe. An eighth lamp on the rack was said to have a life of 100 to 120 hours at a single trimming. The table in the center of the booth was fitted with four lamps having various types of ornamental shades and fittings. On one side of the space was a small laboratory table with instruments for taking readings of the various lamps on exhibition. A high-voltage lamp for multiple connection on 220-240-volt circuits, which is built for two amperes, two and a half amperes and three amperes, and is said to maintain a voltage of 150 at the arc, was also displayed. An attractive pam-



Rear View of General Vehicle Company's Vehicle Showing Power Equipment phlet illustrating and describing the lamp and giving tests was distributed.

Hurley Machine Company, Chicago, Ill, had on exhibition a line of "Thor" and "Chicago" electric washers and wringers. The company showed a universal rod in connection with its Thor electric washer running an ice cream freezer, meat chopper, ironing machine, and a number of other small appliances used about the house. A feature of the exhibit was an ice machine said to be capable of freezing twenty pounds of ice in twenty minutes, operated by electricity.

General Vehicle Company, Long Island City, N Y, showed one of its latest type 2,000-pound wagons complete. The truck was jacked up so as to permit the power plant to be operated. The wagon had ample floor loading space and was adapted to many lines of business. It was said to be capable of making forty miles per charge of battery when loaded over half its course, so that it could meet the delivery requirements of purchasers. The battery comprised forty-four nine-plate cells arranged in four crates. An 80-volt General Electric motor was employed and Hess-Bright ball bearings used to minimize the friction. The countershaft was of housed type on Timken roller bearings, and the first reduction of the transmission is by Morse silent chain and the second reduction on roller side chains to each rear wheel.

General Compressed Air and Vacuum Cleaner Company, St Louis, Mo, exhibited through its agent, Mr Schmucker, a number of Thurman portable electric vacuum cleaners in operation.

Gudeman & Company, New York, electrical decorators, had a number of fruit trees, flowering plants, etc, on exhibition in which the fruit, flowers, etc, were represented by naturally shaped colored lamps. These are intended for dining-room and hotel use, principally, forming attractive decorative features which add to the setting of tables, rooms, etc.

The Wonderful Pump Company, 50 Grand Street, New York, manufactures a screw pump which was shown in operation direct connected to a motor. The device is said to possess very little internal friction and to be particularly adapted to gritty and sandy water. The size of the stream discharged is equal to the bore of the pump, and machines capable of delivering 40, 200 and 300 gallons of water per minute were shown in operation.

Watson-Stillman Company, 50 Church Street, New York.—This company displayed a 60-ton broaching press, a 3,000 pound street car lift, hydraulic jacks, shaft straighteners, pumps, etc.

Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa.—The exhibit of this company was representative of their complete line of small power motors and electric heating apparatus intended for domestic use. The Westinghouse toaster stove, steel top hot plates, electric sad irons, tailors' irons, and luminous and non-luminous radiators. The display of small power apparatus will include the new Westinghouse general utility motor complete with attachments for use with a sewing machine or grinding machines, lathes, blowers, etc. The new jewelers' buffing motor, type DA motor, eight-inch desk fans, eight-inch telephone booth fans, ventilating fans, and mercury vapor rectifier outfit for battery charging.

Attractive Electric Signs on the American Music Hall—Eighth Avenue and Forty-second Street

THE HEANY COMPANY, 25 BOND STREET, NEW YORK.—This company made a display of Heany tungsten lamps, fireproof asbestos-covered wire and tipless lamps of both carbon and tungsten types, as manufactured by the Tipless Lamp Company. The Heany arc lamp manufactured by the Lord Electric Company was also exhibited.

INTERNATIONAL CORRESPONDENCE SCHOOLS, SCRANTON, PA.—This well known institution exhibited specimens of its various correspondence courses, and distributed literature relating to them.

KELLER MANUFACTURING COMPANY, PHILADELPHIA, PA.—W P Pressinger Company, agents for the Keller Manufacturing Company, exhibited in two adjoining sections a large number of "Santo" portable electric vacuum cleaners with full equipments; several special portable cleaners finished in different colors to show how the machine can be furnished when desired to meet architectural and personal requirements, and one transparent cleaner. In the latter the dust can be seen entering the bag and the full operation of the vacuum pump can be followed. There were also on exhibition truck type machines suitable for use in hotels, apartments, car barns, railroad stations and places where a large and powerful machine is needed. In addition to its use as an exhibit, the machine was employed by the show managements for general cleaning throughout the exhibit. It was also at the service of the various exhibitors to be used by them for cleaning their exhibits. There were a number of attractive photographs showing portable and stationary machines in operation, and various special tools intended for cleaning billiard tables and other apparatus.

H Krantz Manufacturing Company, Brooklyn, N Y, exhibited a large number of panels and switchboards for various classes of work.

Knight & Knight, New York, exhibited shades for incandescent lamps made from fibre and parchment, known as "Spookie Shades."

Charles L Kiewert Company, 39 Cortlandt Street, New York, exhibited its "Aurora" flaming arc lamps.

The Lansden Company, Newark, N J, exhibited two of its machines representing widely different lines of construction. The standard 1,500 pound closed panel delivery wagon for department stores has a speed of eleven miles an hour. The machine is said to carry 100 per cent overload, and its rated mileage for the full distance with full load is 3,200 pounds; wheel base eighty-eight inches; the wheel guage, fifty inches, and three inches by thirty-two inches; solid rubber tires are employed. The other machine on exhibition was an industrial truck, developed for use in factories, mill yards, steamship piers, railroad terminals, etc. This vehicle is said to possess features which make it particularly adapted for such work. It is low and easily loaded and on account of its peculiar construction can be taken through narrow passageways. It is constructed in two forms, a three-wheel outfit, and a four-wheel truck, which has an additional single steering wheel added to the opposite end.

Murphy Electricity Rectifier Company, Rochester, N Y, exhibited a rotary disc type of rectifier and also a stationary electrode type. The latter possesses an advantage over the former in being self-starting and eliminating all moving parts with the exception of a small synchronous motor. It is, moreover, much smaller and simpler in construction. The principle under which the Murphy rectifier operates has already been described in our columns. The device is applicable to a large number of uses, including the charging of batteries for electric carriages, telephone, fire alarm systems and car lighting, also for moving picture machines, electroplating, X-ray work, and other purposes where direct current is required and an alternating current source only available.

Manhattan Electrical Supply Company, 17 Park Place, New York, exhibited a line of general supplies in its main booth. The list of goods manufactured by this company includes electric light specialties, medical apparatus and electrodes, telegraph and telephone apparatus, electric bells, massage vibrators, dry batteries, electric horns, jump spark coils, automobile switches, and motors, dynamos, time switches, door openers, testing instruments, etc. The company also had an exhibit of wireless telegraph apparatus.

Electric Car Crossing the Queensboro, or Blackwell's Island, Bridge. Current is supplied by The New York Edison Company

MOORE ELECTRICAL COMPANY, NEWARK, N J, exhibited the Moore tube-light in the Garden lobby.

NEW YORK ELECTRICAL SCHOOL, 39 WEST 17TH STREET, NEW YORK, showed photographs of the practical work accomplished by its students.

NATIONAL ELECTRIC LAMP ASSOCIATION, CLEVELAND, OHIO, showed a complete line of 110-volt tungsten, tantalum and gem lamps, and also a 220-volt tantalum and tungsten lamp. They also had an exhibit of automobile, train and sign lighting lamps; tungsten street series lamps and street car tantalums. All the lamps in the booth had Holophane reflectors.

OTIS ELEVATOR COMPANY, 17 BATTERY PLACE, NEW YORK, exhibited one of their elevators in operation, installed in a thirty-foot tower, attractively illuminated. The car was under the control of a push-button operation system. The mechanism exhibited consisted of an Otis direct-current electric motor driving a hoisting drum through a worm and wheel; an Otis magnet controller of a system of magnets to govern the starting and stopping of the car; safety governor, for preventing a too rapid downward mo-

One of the Cars Operated from the Edison System Approaching the Bridge tion of the car; safety switches, for limiting the travel of the car; automatic door-locking devices, and other mechanical and electric features peculiar to this type of elevator.

Public Service Corporation of New Jersey, Newark, N J, confined its exhibit mainly to literature setting forth its advantages for the user of light, heat and power in its territory. Attention was directed to Northern New Jersey home and factory sites and the company's ability to provide current for all purposes.

Pelouze Electric Heater Company, Chicago, Ill., showed samples of its new twenty-pound tailors' goose, so constructed as to admit of three heats, adjustable while in operation. The low heat is arranged to keep the iron at proper working temperature while left standing. There was also on exhibition the "Universal" iron in three other sizes, four pound, six and one-half pound and nine pound. In this the temperature can be controlled by a simple movement of the hand while ironing. The iron has not only a hot point but hot edges, and is so designed as to give good distribution of heat on the bottom at all three contacts.

Radio Reflector Company, 1178 Broadway, New York.—The well known Radio reflectors were the feature of this exhibit.

Seely Office Appliance Company, 95 Liberty Street, N Y.—The features of this exhibit were the Edison Business Phonograph, the Protectograph, and Phone-Eze.

Shelton Electric Company, 105 West 42d Street, New York, exhibited several types of vibrators which they manufacture.

A C Schmucker, 315 Fifth Avenue, New York, exhibited the Thurman Portable Electric Vacuum Cleaner.

F L Smidth & Company, 50 Church Street, City, had on exhibition several types of its "Lenix" drive.

The Southern Exchange Company, 97-101 Warren Street, New York, exhibited overhead wooden construction material, poles and cross arms; also large framed photographs of their several mills and yards in the South, sections of cedar and yellow pine poles, as well as an entire set of cross-arms of all lengths and sizes.

Studebaker Bros & Company, New York, have three electric vehicles on exhibition. Side by side was a five-ton stake truck, the largest built by the company, and an 850-pound panel wagon, the smallest vehicle turned out by the Studebaker concern. The latest model of victoria phaeton formed the third exhibit. Exide batteries are used in series in connection with Westinghouse motors. The large truck has a two-motor equipment, which gives an individual drive for each rear wheel and eliminates the necessity of a differential or equalizing gear. The delivery wagon is fitted with twenty-six cells of 11 M V Exide battery, but where long distance is requried forty-four cells of Edison A-6 are installed.

The Tucker Electrical Construction Company, 110-112 West 30th Street, New York.—This exhibit consisted of a practical demonstration of the various kinds of construction work approved by the underwriters, covering everything, from exposed work on insulators to the latest form of concealed conduit work. It will also include various fixtures and appliances used in connection with the work in the Interborough Subway, Hudson tunnels and other railroad work in the vicinity. The latest forms of bell and burglar alarm work were shown, and in general how to install the various electrical devices exhibited by others. Part of the Tucker Company's space was occupied by the De-Veau Telephone Company with a complete line of telephones of the latest ball-bearing and metal case type, as well as metal case annunciators.

STANLEY AND PATTERSON, 23 MURRAY STREET, NEW YORK, displayed a complete line of Patterson wireless battery holders which have met with such universal success.

THE STORAGE BATTERY SUPPLY COMPANY, NEW YORK, showed as the feature of their exhibit the Hudson-Fulton storage battery intended for Christmas tree outfits and similar uses in operation.

UNITED SHOE REPAIRING MACHINE COMPANY, BOSTON, MASS.—Goodyear's shoe repairing machinery driven by electric motors was exhibited by this company.

ROGER WILLIAMS, 25 WEST 42D STREET, NEW YORK.—This exhibit included about 200 different devices, among the latest of which was an electric toaster which would toast four slices of bread at once in from two and one-half to three minutes with a power consumption of 500 watts. This is claimed to be the most economical toaster on the market and is of the usual Simplex quality. Many new devices were shown, such as a large nursery milk warmer, hotel toaster, two syles of irons for heavy flat work besides a complete line of household irons, laundry and tailors' irons, electric stoves, chafing dishes, water cups, curling iron heaters, heating pads, percolators, dining-room outfits, consisting of chafing dish, coffee percolator and tea kettle combination; waffle irons for making waffles on the table; cooking utensils, such as blazers double boilers, tea kettles and sauce pans, all arranged to clamp to the stoves, thereby making them more efficient and at the same time allowing them to be removed for cleaning. Among the other articles are electric ranges with a water heater, heating the heater in the ordinary kitchen boiler; on these ranges no wires are exposed and no complications are involved. Glue pots, soldering coppers, regulator stands for the commercial irons, and cord supports completed the exhibit. Mr Roger Williams is the New York agent for the Simplex Electric Heating Company, who loaned to the Dryer Manufacturing Company laundry irons with which to do ironing, and electric heaters for the clothes dryers. In the booth of The New York Edison Company were Simplex stoves for making candy and for baking shredded wheat.

THE UNITED ELECTRIC LIGHT AND POWER COMPANY, 1170 BROADWAY, NEW YORK.—In this booth were exhibited alternating current novelties, such as advertising and spectacular effects obtained with alternating current; induced electrical effects, transformers and other alternating current apparatus. A complete outfit of medical and dental appliances was also on view, including an X-ray apparatus; an economical moving picture machine, and alternating current types of electrical lamps used in photographic work, blue printing and other commercial applications. There was also a household booth showing the principal applications of current to the household, including electric irons, toaster stoves, electric heaters, fans and many new devices for convenience and comfort. A great number of different types of lamps were exhibited for decorative, commercial and household purposes, including tungsten, tantalum and metalized filament incandescent lamps, arcs, vacuum lamps, sign lamps and tungsten lamps for sign lighting. Commercial and industrial applications of current were shown in meat choppers, beer pumps, buffing machines, ice cream freezers, exhaust fans for ventilation, cloth cutters, machine drills, jig saws, lathes, printing presses, welding apparatus, hoists, concrete mixers, rivetters, etc. The advance made recently in alternating current elevator apparatus was demonstrated with a complete high-speed elevator in full operation.

THE NEW YORK EDISON COMPANY, 55 DUANE STREET, NEW YORK.—Within this enclosure were shown and demonstrated a great variety of interesting features. The Metropolitan Engineering Company displayed its many types of electric signs; the Cyphers Incubator Company had an exhibit of electrically operated incubators, hatching chickens during the entire Show; brooders and "electric hens" were also shown; Causchois, the coffee man, demonstrated electrically operated coffee urns and visitors sampled the black coffee made in them; a printing exhibit consisting of a Whitlock cylinder press, printing a sheet thirty-six by forty-eight inches; a Dexter folder, a Dexter cutter, a Monitor stitcher, a monotype machine casting type, samples of which were distributed among visitors. The press printed Edison booklets during the Show and the other machinery finished them before being distributed. An electric laundry, consisting of a washing machine, dryer, mangle and ironing table, turned out flat work supplied by a neighboring hotel; a candy kitchen was in operation with electric machinery, and candies shaped like incandescent lamps were given away. Frank Brothers, embroidery manufacturers, showed a sewing machine operated by a motor and electric iron pressing the finished work; Philip Morris & Co. operated cigarette-making and cork-tipping machines and gave away souvenir cigarettes; The Natural Food Co showed their process of steaming, shredding and baking wheat for triscuits, samples of which were distributed throughout the Show to spectators.

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 503—Independence Electric Co
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 433—C T Pinkham & Co
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 25th St 130—N Y Electric Installation Co
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—The Tucker Electrical Con Co
West 33d St 209—E J Electric Installation Co
West 38th St 72—A J Buschman Co
West 40th St 213—Lord Elec Co
West 42d St 29-33—Getmond & Turner
West 42d St 112-114—Oberg & Blumberg
West 42d St 316—J F Baker & Co
West 45th St 100—F A Bohling
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky

East of Broadway and Fifth Avenue

Beekman St 1—Electric Motor Insp & Repair Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—Johnson Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82-84—Mfgrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 119—Kelting Engineering & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Electric Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

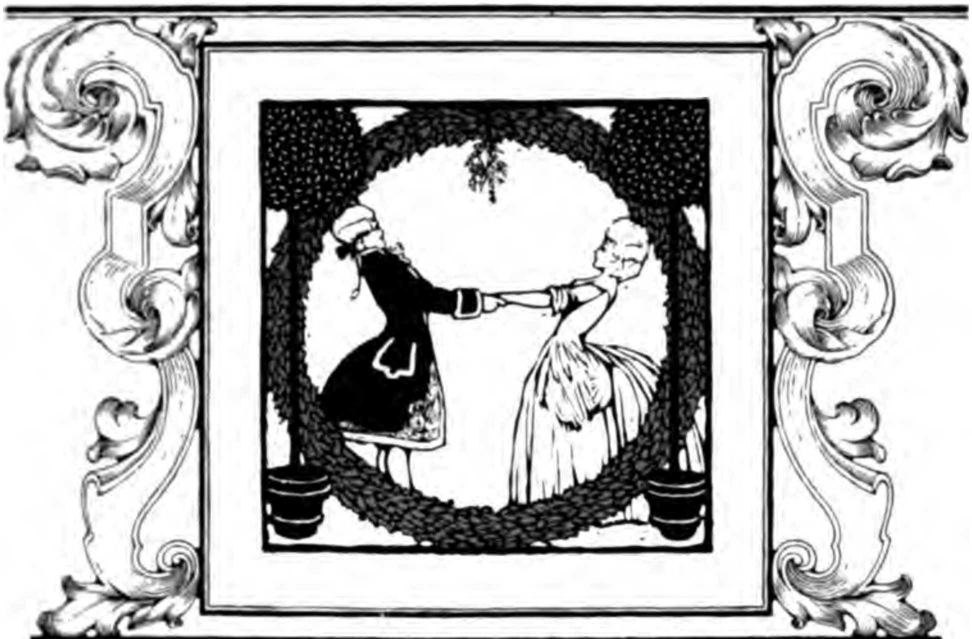
Bronx

Baker & Fox—313 East 141st St
Evans & Karstner—1 Madison Ave
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Ave
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
The Westchester Electrical Equipment Co—34 No Broadway
Thomson A—83 Waverly St
Underhill Harry—Bronxville N Y

THE EDISON MONTHLY



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ORIAL

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Monthly will be sent regularly to any
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DISON MONTHLY extends to readers and friends the best or a Merry Christmas and a ew Year.

* * *

suggest that before purchas- ristmas present the merits of y electrical household appli- investigated. There is an d variety of useful articles to on that would be appreciated g and old alike.

ften difficult to choose a gift some distinctiveness and that away from the conventional generally adhered to. Elec- ating and cooking appliances, a breakfast set consisting of coffee percolator and cooker, ating pad, vibrator and many thers too numerous to men- always acceptable, as well as In the following pages a of Christmas suggestions will d, together with illustrations rical devices, which it is hoped of value to our readers.

There are many reasons why electric motor drive is particularly adapted to printing and publishing establishments. Economy of operation, increased production and ease of control are essential factors of motor drive which enter generally into all industrial work. In the printing business, however, another element enters into consideration, and that is cleanliness.

In mechanically driven plants much damage is done to paper by dirt and oil thrown from overhead belting and shafting.

In modern printing plants, where each press or machine is driven by its own motor, overhead shafting and belting are not required, therefore the grease and dirt attendant upon their use are eliminated.

* * *

Another feature of electric drive for printing plants is the ease of control of motor-driven machinery. Large cylinder presses capable of printing thousands of newspapers or books per hour can be stopped or started at will by push buttons located at advantageous points about the framework. These buttons are interlocking, so that only one at a time can operate the motor controller.

* * *

Electric hoists and cranes are used to great advantage for handling large rolls of paper. The biggest rolls can be placed in their proper position with perfect ease. Electric heating plays an important part also. Electric glue-pots in the bindery maintain an even temperature and eliminate the danger of fire from other sources of heat. Electric heating is also applied directly to machines, such as embossing presses.

The article in this issue describing the electric equipment of Messrs P F Collier & Son's building will give a very comprehensive idea of the many applications of electric power in an industry of this kind.

It is interesting to recall that the Collier building was originally equipped with a large generating and storage battery plant. It was one of the most complete and carefully designed plants ever placed in New York. Investigation, however, revealed the superiority of the Edison System, to which it soon gave place.

* * *

The recent terrific boiler explosion in the private plant of the Pabst Brewing Company in Milwaukee illustrated very forcibly two important facts: First, that the maintenance of high-pressure boilers is a constant source of danger to life and property; and, secondly, the rapidity with which a plant can be placed in operation, where electric motor drive is used, when central station service is available.

The explosion nearly wrecked the boiler house and threw huge pieces of the demolished boilers for some distance, resulting in a complete shut-down of the entire brewery. Arrangements were made at once with a local lighting company for connections, and within twenty-four hours most of the departments of the enormous plant were in operation.

The Pabst Company maintain a high standard of engineering in their plant and the accident shows that explosions of boilers are always liable to occur, no matter what precautions are taken to prevent them.

Had the machinery been driven mechanically there would have been a complete shut-down for some time, but as nearly all departments used electric motors it was simply a question of the time necessary to connect with central station service, which, if used before, would have eliminated the accident entirely. A more complete account, together with an illustration, appears elsewhere in this issue.

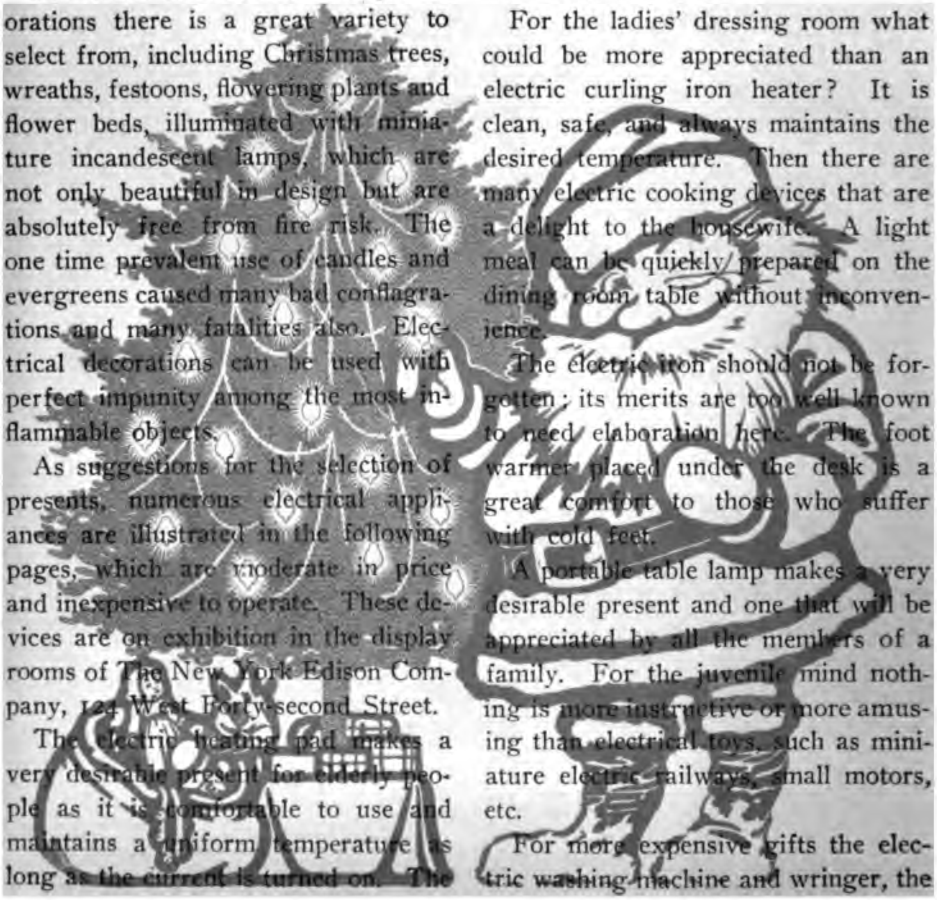
* * *

About six weeks have elapsed since the close of the Electrical Show, and in that time reports from many exhibitors have been received which are highly gratifying. Many large orders were received, one company alone closing an order for a $10,000 machine, beside smaller orders during the Show.

Other companies report a large business during the ten days of the exhibition and the consensus of opinion is that the Electrical Show of 1909 was the most beneficial to not only the exhibitors, but to the general public, of any similar show ever held.

Christmas Suggestions for 1909

AS Christmas draws near everyone is naturally thinking what would make the most suitable gift. The tendency to give articles that are useful in every day life is rapidly growing and the multitude of electrical devices for household use that are now on the market offer a wide selection from which to choose an appropriate present.



In the line of electrical holiday decorations there is a great variety to select from, including Christmas trees, wreaths, festoons, flowering plants and flower beds, illuminated with miniature incandescent lamps, which are not only beautiful in design but are absolutely free from fire risk. The one time prevalent use of candles and evergreens caused many bad conflagrations and many fatalities also. Electrical decorations can be used with perfect impunity among the most inflammable objects.

As suggestions for the selection of presents, numerous electrical appliances are illustrated in the following pages, which are moderate in price and inexpensive to operate. These devices are on exhibition in the display rooms of The New York Edison Company, 124 West Forty-second Street.

The electric heating pad makes a very desirable present for elderly people as it is comfortable to use and maintains a uniform temperature as long as the current is turned on. The electric vibrator is useful for young and elderly people alike for relieving numerous ailments and is delightful to the man of the house for use after shaving. The electric shaving mug, too, will always please the male members of the household and an electric cigar lighter in the den or on the smoking table saves the frequent search for matches and the litter made when they are used.

For the ladies' dressing room what could be more appreciated than an electric curling iron heater? It is clean, safe, and always maintains the desired temperature. Then there are many electric cooking devices that are a delight to the housewife. A light meal can be quickly prepared on the dining room table without inconvenience.

The electric iron should not be forgotten; its merits are too well known to need elaboration here. The foot warmer placed under the desk is a great comfort to those who suffer with cold feet.

A portable table lamp makes a very desirable present and one that will be appreciated by all the members of a family. For the juvenile mind nothing is more instructive or more amusing than electrical toys, such as miniature electric railways, small motors, etc.

For more expensive gifts the electric washing machine and wringer, the electric ironer and electrically driven kitchen appliances are always acceptable. A small motor for attaching to the sewing machine will relieve fatigue of sewing and will be found indispensable when once placed in operation.

Electric Heating Pad

The electric radiator in the home is always useful, especially in weather that is too mild to require the operation of a heating system. It is small, portable and is quickly available, and it is controlled by the simple turn of a switch and requires no matches.

For use in a summer cottage on cool mornings it will be found to be a great comfort where no regular means of heating is installed. In the bedroom or the bathroom of the city house it provides a grateful warmth.

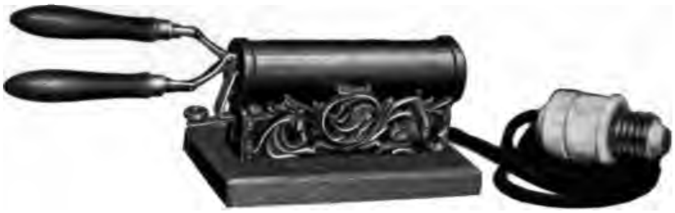
Stove

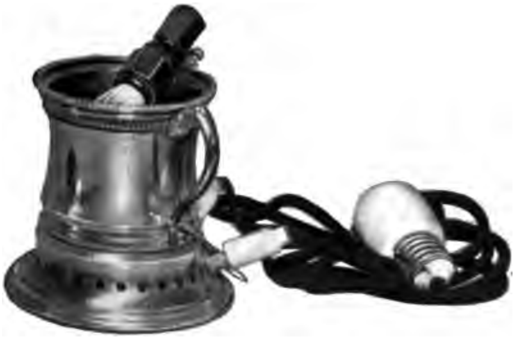
THE NEW YORK EDISON COMPANY has recently closed a contract with the One-hundred-thirteenth Street and Broadway Company to furnish current for the new apartment house in course of erection at the corner of Broadway and 113th Street. This is to be a twelve-story building, one hundred and seventy-five by one hundred and twenty-five feet. The electrical equipment will consist of three thousand five hundred incandescent lamps and nearly one hundred horse-power in motors.

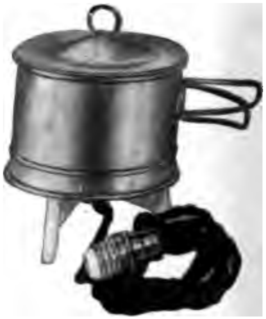
The ever present danger of explosion when high pressure boilers are used is entirely eliminated when Edison Service is used for light and power.

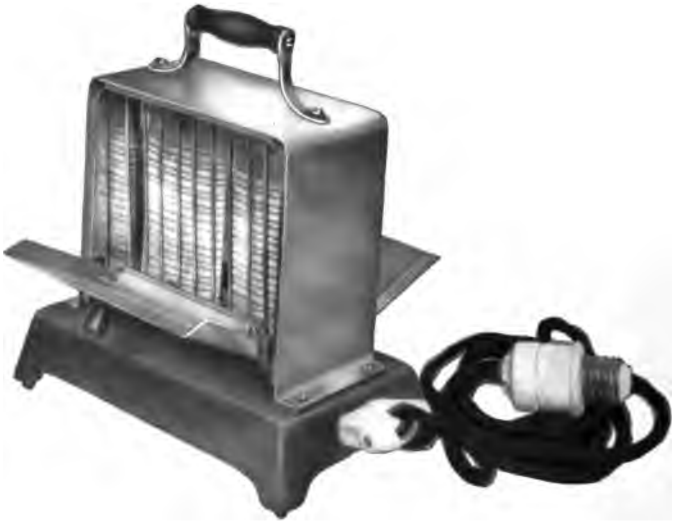
Let electric motors do the small work now performed by hand. By so doing time, money, strength and patience are saved.

Electric Vibrator


Curling Iron Heater


Shaving Mug


Traveler's Stove

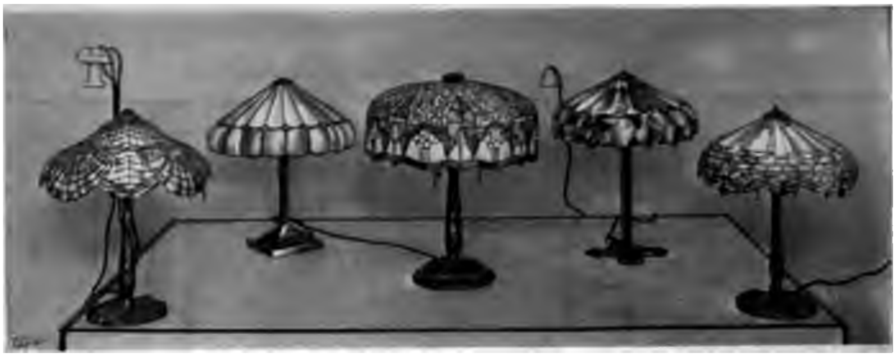

Toaster

Foot Warmer

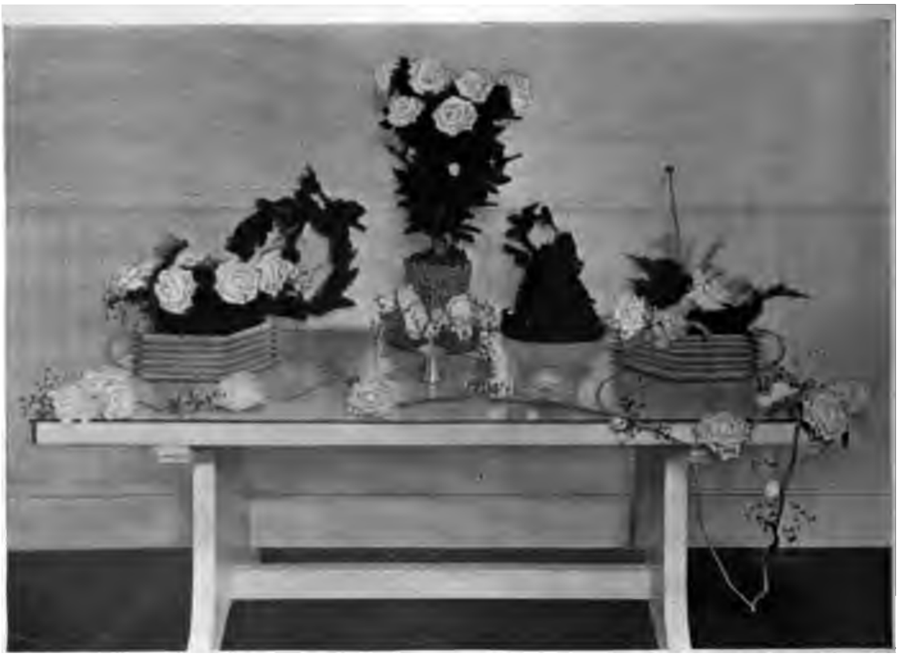
Percolator

Cigar Lighter

Food Warmer

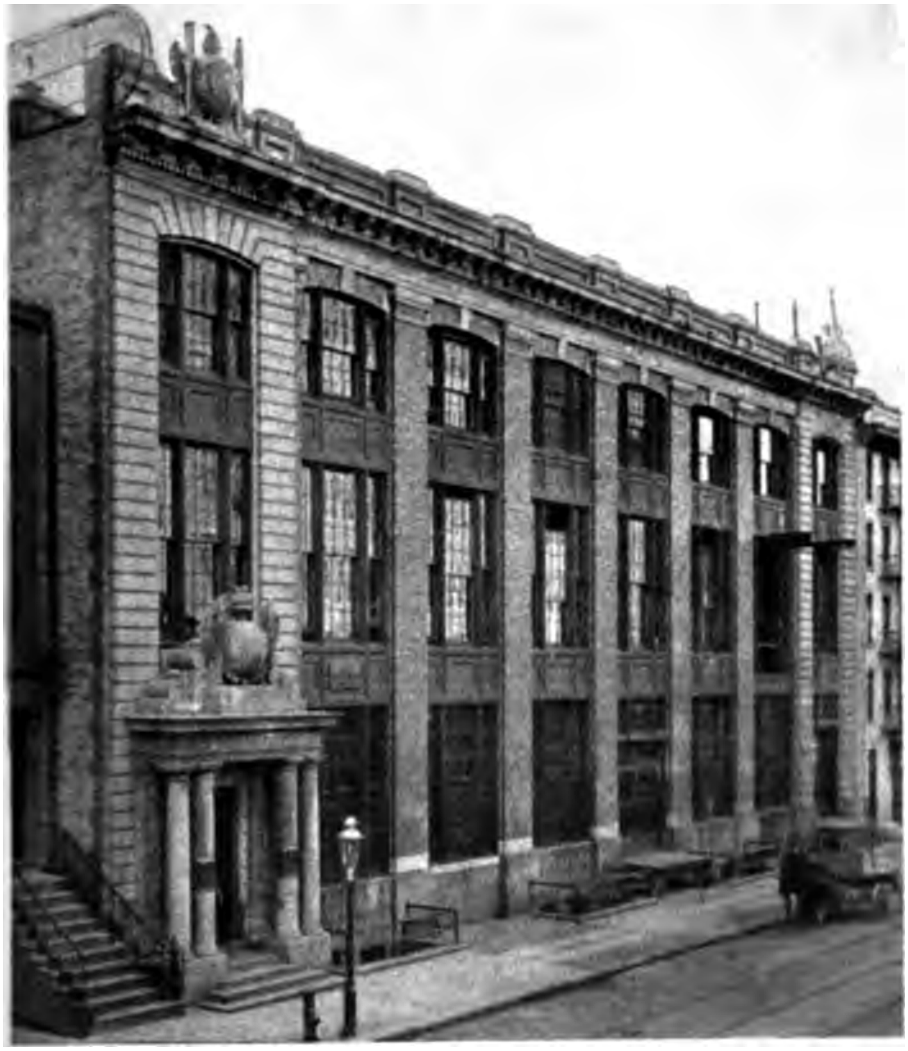


Artistic Table Lamps Manufactured by Messrs Sibley & Pitman

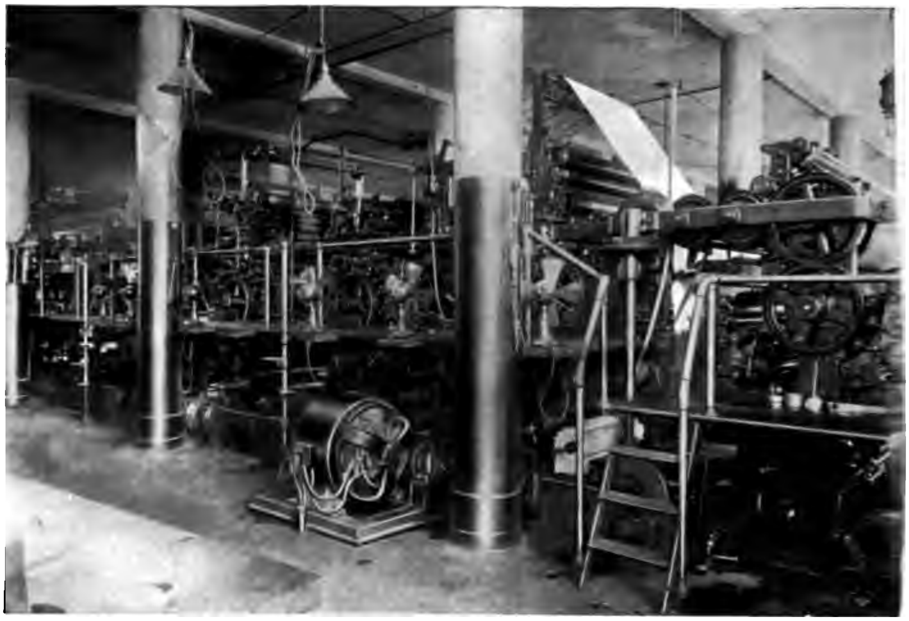


Electrical Christmas Decorations Manufactured by Messrs Gudeman & Co

The Printing and Publishing Plant of Messrs P F Collier & Son



This view of the Collier Plant shows part of the building facing on Thirteenth Street It gives but a meagre idea of the building, as it is carried in "L" shape back of the tenement houses shown in the farther side of the picture and extends through from Thirteenth Street to Little West Twelfth Street The main pressroom on the first floor is a full block in width and nearly a block in length

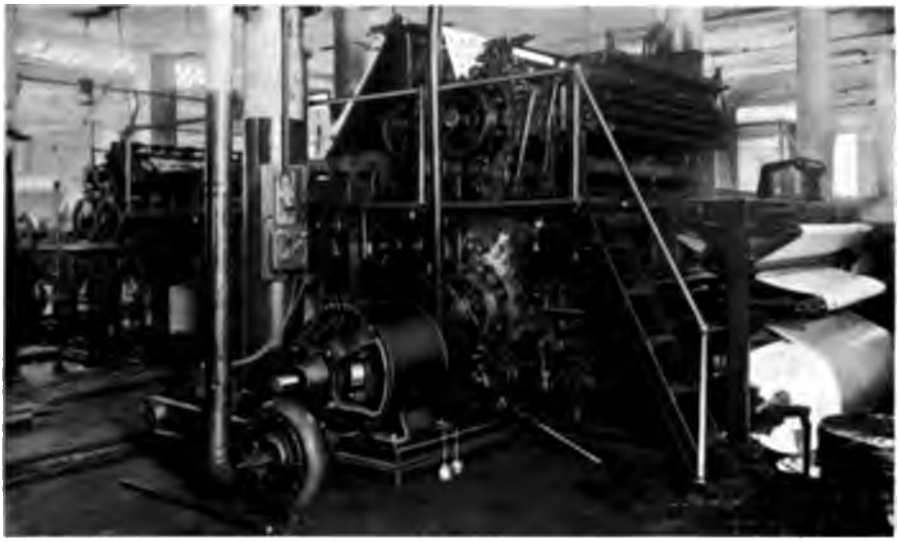


Edison Service

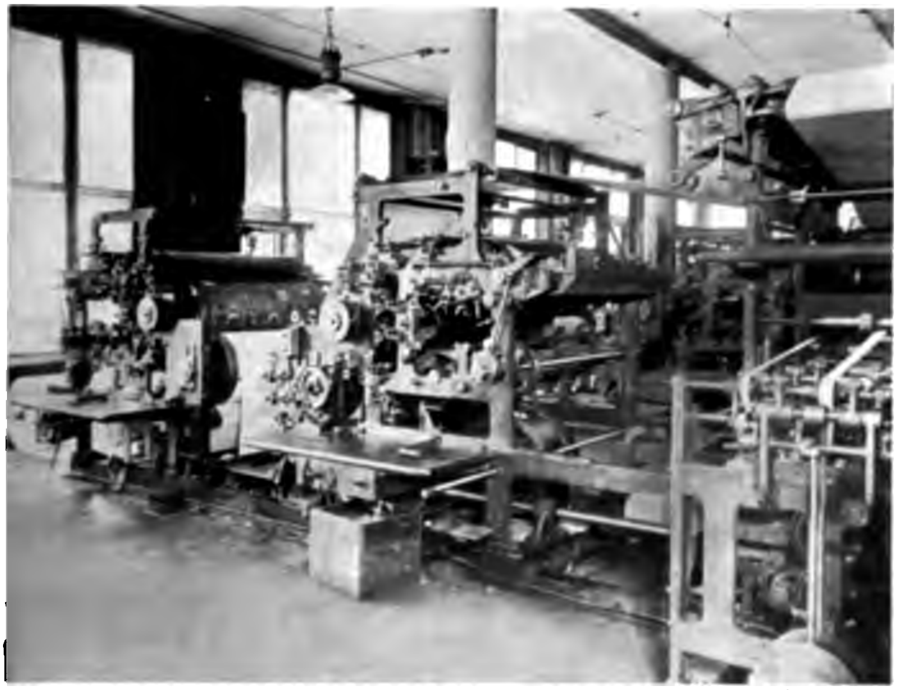
This press prints 24,000 covers of "Collier's Weekly" in five colors every hour. It is individually driven by a 30-horse-power motor geared directly to a drive shaft which transmits power to each section of the press

Edison Service

Folding, Collating and Wire-stitching Machines. As "Collier's Weekly" is printed on several finishes of paper to conform with the quality of the work, that is, whether color or black, it is necessary to print it in different forms and then collate, fold and wire-stitch it separately. This is done by five sextuple folding machines. They are individually driven and each machine is equipped with an air pump run by a separate motor that supplies the automatic feeders with air pressure



The Goss Web Presses shown in the illustration take a 76 inch roll of paper and carry forty-eight plates. In running at such a high rate of speed as they operate, it is necessary to force air on the composition ink rollers. This is done by means of the blower in the foreground.



Goss Web Presses. Note the position of the motor in the center of the press. This is placed in what would otherwise be wasted floor space and [illegible]

Electrical and Mechanical Equipment

AS an example of a publishing house using electric light, power and heat almost exclusively in the conduct of their business, the establishment of Messrs P F Collier & Son, on West Thirteenth Street, furnishes an excellent illustration.

This firm publishes *Collier's Weekly*, with a circulation of 550,000 copies, and in the book department have a capacity of 20,000 fully bound volumes, averaging 500 pages, every eight hours. The buildings composing the plant have a floor area of four and a half acres, and are equipped with the latest modern machinery for printing and publishing purposes.

Individual electric motor drive is, with a few exceptions, used exclusively, thereby practically eliminating overhead belting and shafting. Simplex heaters are used on the embossing presses and various book-binding machines. For heating glue more than twenty glue pots are in daily use. To illustrate the enormous output of this plant it is interesting to note that as high as 410 tons of paper have been used in one week, and that it requires approximately 150 tons of paper for each edition of the *Weekly*.

Edison Service

Simplex Glue Pots. Throughout the bindery are scattered, wherever most convenient for their use, dozens of these pots, all electrically heated

It requires upward of 250 motors to operate the great printing presses and auxiliary apparatus that complete the equipment. To print *Collier's Weekly* twenty-five flat-bed presses, two black Web presses, running sixty-six-inch rolls of paper, and one five-color Web press are used. In the book department there are nine book Web presses and six flat bed presses.

The job department is equipped with three cylinder presses, one two-color Harris press, one automatic envelope press, six John Thompson presses and five Universal presses. A complete electrotype department with motor driven machines is maintained for the firm's work.

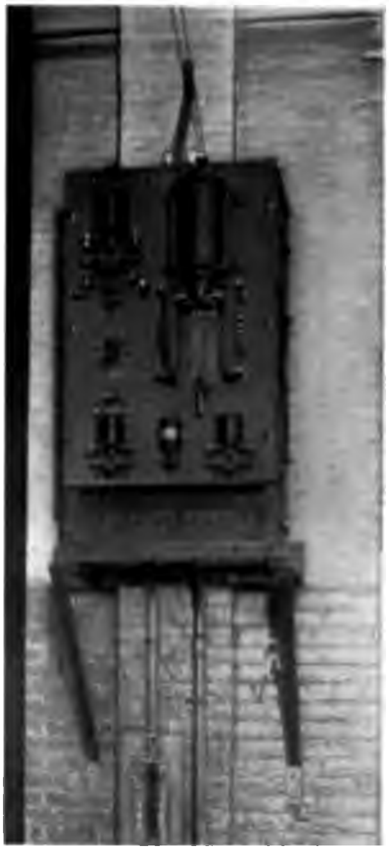
The Chapman Neutralizer System, described elsewhere in this issue, is used on the cylinder presses for removing the static electricity from the paper.

The illustrations on the pages following show a number of departments of what it can truly be said is one of the most interesting establishments in the city.

Use of Motors in the Varied Industries

The following list, alphabetically arranged, gives the varied industries in which the use of electric motors is [illegible]:

[illegible] agencies, amusement parks, artesian drillers, astronomical observatories, automobile works, bak [illegible]



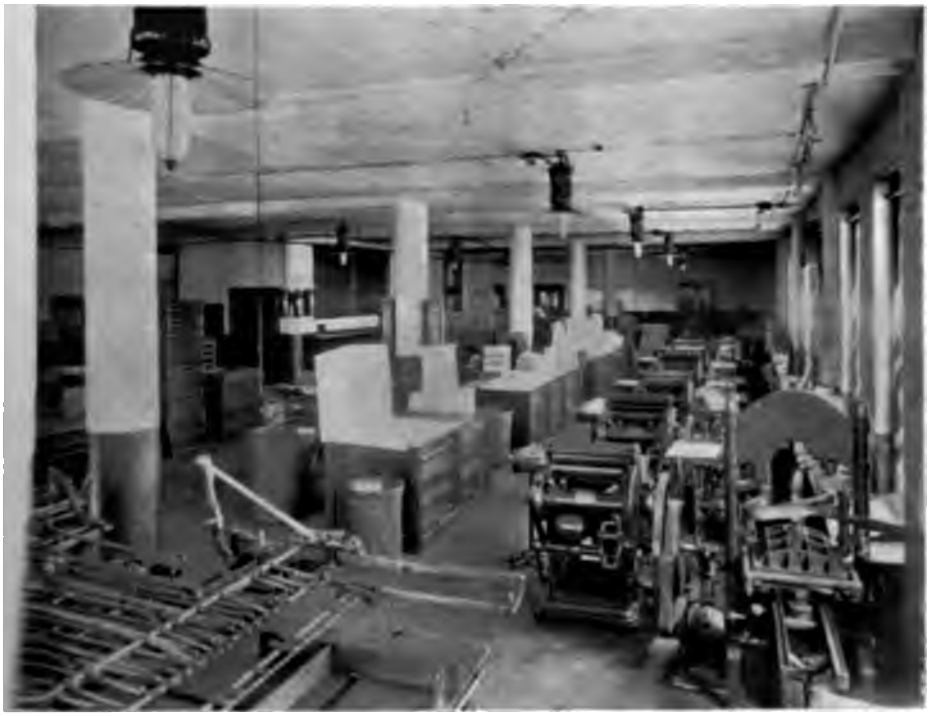
Kohler System of Control. The Web presses are operated and driven with the Kohler System. Push buttons are installed on the different parts of the machine so that the press may be started from any point or side of the machine. These are in turn equipped with "Safeties" so that it is impossible to start the press from more than one station, thereby preventing accidents.

[illegible]

breweries and bottling works, brick yards, calico print works, candy manufacturers and confectioners, car works, carpenter and woodworking shops, carpet mills, carriage works, chocolate manufacturers, churches, cider mills, cigar factories, clothing manufacturers, clay working, cement mills, cold storage, concert halls, concrete construction, contractors and builders, copper goods manufacturers, cork manufacturers, cotton mills, cotton seed oil manufacturers, creameries, dairies, department stores, docks—ore; docks—steamship; dredges—gold; drop forge manufacturers, drug stores, dry goods stores, dyeing establishments, electrotypers, engravers, farms, ferry slips, filtration plants, flour mills, foundries, furniture manufacturers, gas and steam fitters, glass manufacturers, grain elevators, grain and feed mills, hardware manufacturers, harness manufacturers, hat manufacturers, hospitals, hotels, house cleaning concerns, ice cream manufacturers, ice harvesting plants, ice making plants, jewelers and opticians, knitting mills, lace mills, laundries, libraries, livery stables, machine shops, marble works, markets, manufacturers of small tools, mining—coal; mining—gold; mining—ore; mining—silver; office buildings, packing houses, paper

Edison Service

Embossing Presses. The heads are heated by Simplex units so arranged that the working surfaces only are hot. There are three different heats controlled by snap switches. Messrs P F Collier & Son box manufacturers, paper mills, parks, penny arcades, photographers, piano manufacturers, pipe manufacturing—cast iron; pipe manufacturing—sewer pipe; pipe manufacturing—steel; planing mills, plate glass works, plumbers, post offices, poultry farms, powder mills, printing establishments, pulp and paper mills, railroad shops, residences, restaurants, rope and cord manufacturers, rubber manufacturers, saloons, sash and door manufacturers, sausage manufacturers, saw mills, schools and colleges, ship yards, shirt and overall factories, silk mills, silverware works, soap manufacturers, stamping companies, steel mills, stone quarries, sugar, tack works, tailoring establishments, tanneries, tent and awning manufacturers, textile mills, theatres, thread manufacturers, tobacco works, tube mills, wagon works, wire and cable manufacturers, wire and sheet manufacturers, woolen manufacturers, yarn mills.



Job Pressroom. The six John Thompson presses in the right of the picture are used to reproduce the color illustrations in the "Weekly." These are proved in the most artistic manner and sold to the trade. In addition to this equipment, the job pressroom has a 54 inch cutting machine, [illegible]-color Harris press, automatic envelope press, four universals, three cylinder presses, together with wire-stitchers, bronzing machine, etc, all individually driven. The stationery and advertising matter for the entire Collier concern are printed in this room

Mr Edison's Predictions

THOMAS A EDISON predicts that within the next twenty years the art of molding concrete will reach a marvelous degree of perfection in architecture.

This will not be achieved by great expenditure of money; it will be accomplished by labor-saving appliances, which will so cheapen the cost of production that, twenty years hence, the poor will have more beautiful homes than the rich can now aspire to.

Edison Service

Battery of Linotype Machines. Each machine is individually driven by an electric motor. Messrs P F Collier & Son

Mr Edison predicts that moving-picture machines will be so perfected that the characters will move and speak, and other stage accessories will make the illusion perfect. Such entertainments, he says, can be provided for five cents and will give the millions of working people a chance to be amused and improved. The result will be a hard blow to the saloon.

Locomotives will pass out of existence, and all railroads be operated by electricity. This prophecy seems very evident of fulfilment. An artist searching for a model of a steam locomotive found out the other day that to see an old-fashioned engine he would have to go to Jersey City, as electricity operates all roads running into New York proper.

The water-power of our brooks and rivers will be utilized by electricity to an extent now undreamed of.

A new fertilizer will spring into existence containing nitrogen in large quantities. Electricity will draw this from the air and will greatly increase the arability of our land.—*Success Magazine.*

Electricity in the New Theatre

THERE was recently opened to the public a magnificent theatre, at Central Park West, 62d and 63d Streets. It is called the New Theatre, and is the largest and best equipped, electrically and otherwise, of any similar place of amusement in the United States.

The lighting of this building is equal to more than 19,000 16-candle-power lamps, of which the stage lighting comprises approximately 14,000. The stage lighting is a new departure in theatre lighting, the Linolite made by the Johns-Manville Co being used in all the borders, strips and footlights, with the addition of a dozen Excello arcs. The "dimmer" system is also something new; the lights are controlled by automatic devices whereby they may all be set at one time to any degree of candle-power, from 0 to 16, and then by the throwing in of a single switch they are all in operation at once.

The power necessary to elevate and revolve the stage, shift the scenes, ventilate the building, operate the elevators and pumps, amounts to 1,665 horse-power, or about 24,975 16-candle-power equivalents for the total installation.

Another novel feature is the revolving stage, which enables the stage hands to set up one scene while another is being shown to the audience. The stage is turned by two 25-horse-power motors. It can also be raised or lowered by the use of two 500-horse-power motors.

Machine for Making Book Covers The glue-pot is electrically heated by Simplex units and the machine driven by an electric motor. Messrs P F Collier & Son

An excellent ventilating system provides fresh air by forcing it up under every seat on the orchestra floor by electrically operated blowers, and drawing it off by means of fans on the roof.

The New York Edison Company went to considerable expense in building and installing a main service board and an elaborate meter board which will accommodate twenty-one 600-ampere, two-wire, one 200-ampere, two-wire, and two 180-ampere, three-wire meters. The arrangement of these meters is somewhat out of the ordinary, there being in some cases as many as five meters in parallel on each side of the system.

The Automobile Show at Atlanta

IT was noticed that many of the visitors to the National Automobile Show at Atlanta this week carried with them stylish Quaker drab envelopes containing beautifully embossed and hand-lettered invitations on Chippendale paper to the Waverley exhibit in space number seventy-one of the basement.

Those who acted on the suggestion contained in this unique invitation found much to interest them. The 1910 leader among Waverley Electrics is a four-passenger Brougham, of unusually well proportioned design, durable construction, well chosen appointments, handsome upholstery and workmanlike finish. The top is so constructed that by the removal of a few nuts and screws it can be completely detached and a leather top substituted.

The coach body is built upon a curved sill, which is a patented feature of Waverley Electrics, and brings the step floor and seat several inches nearer the ground than is the case with other coupe cars. The finish is in Waverley maroon of rich shade and high lustre, representing twenty-eight distinct operations in the finishing room, including sixteen coats of color and varnish. The upholstering is in

New Apartment Building at the Southwest corner of Columbus Avenue and 110th Street erected by the Cathedral Realty Company. Messrs Summerfeld & Steckler, architects. Edison Service has been adopted for about 5,000 incandescent lamps and hundreds of horse-power in electric motors

New Building at 45 50 West Fifty fourth Street built by the City Athletic Club. Edison Service will be used for about 2,000 incandescent lamps and over 110 horse-power in motors. Messrs Herts & Tallant, architects

expensive broadcloth and leather of harmonious shade, while the windows are of heavy plate glass, opening in such manner as to furnish the utmost ventilation.

The safety-locking controller, steering handle, foot brakes and voltmeter are all within the car, and after listening to the explanation of the method of operating these given by sales manager Roy A Po[illegible] or Southern representative E. L. Baker, both of whom were at the Show, the visitor speedily concluded that nothing could exceed the safety and ease of operation of a Waverley Electric Brougham.

To show the motor and driving system of their cars these gentlemen mounted a Waverley drive separate from the cars on exhibition. They kept this in operation by electric power and attracted many visitors to their booth [illegible]. It is claimed that solid rubber tires can be used with this drive with perfect comfort to the occupants of the carriage.

Model 70, Waverley Victoria-Phaeton, and Model 74, Waverley Stanhope were also on exhibition. A very attractive feature of the display was a large framed photograph of a beautifully decorated Waverley which won the first prize in the Washington floral parade recently. The smiling face of Mrs T B Spence, owner of the car, is not the least beautiful feature of the picture.

Courtesy "System"

Stowe Portable Buffing Outfit. A time and money saver that can be operated by a boy

* * *

Edison Service is safe, clean and economical.

A Cent's Worth of Power

PROBABLY few people have ever stopped to think what a power electricity is. If you have never thought the matter over it will be surprising as well as interesting to know what can be done with one cent's worth of this marvelous power.

On the average rate and discounts of the ordinary consumer, says *Harper's Weekly*, a cent's worth of electricity will operate a 12-inch fan for ninety minutes.

Will operate a sewing machine motor for three hours.

Will keep a 6-pound electric flatiron hot for fifteen minutes.

Will make four cups of coffee in an electric coffee percolator.

Will keep an 8-inch disk stove hot for seven minutes, or long enough to cook a steak.

Will operate a luminous radiator for eight minutes.

Will bring to a boil two quarts of water or operate the baby milk warmer twice.

Will make a Welsh rabbit in an electric chafing dish.

Will operate a 7-inch frying pan for twelve minutes.

Will keep a heating pad hot for two hours.

Will operate an electric griddle for eight minutes.

Will run the electric broiler for six minutes.

Will run a massage machine for nearly four hours.

Will keep the dentist's electric hammer and drill going for ninety minutes.

Will keep the foot warmer hot for a quarter of an hour.

Will run an electric pianola for one hour.

Will vulcanize a patch on an automobile tire.

Will heat an electric curling iron once a day for two weeks.

Will pump 250 gallons of water 100 feet high.

Will keep a big glue pot hot for an hour.

Will drive the electric clipper while shearing one horse.

Will raise ten tons twelve feet high with an electric crane in less than one minute.

Will raise a large passenger elevator five stories a minute.

Will brand electrically 150 hams.

—*New York Sun.*

Vehicles of the Commercial Truck Company of America

THIS company is building a line of electric commercial vehicles, ranging from 1,000 pounds to five tons capacity. The lighter vehicles, such as are used for delivery wagons, ambulances, etc, are equipped with single motor and spiral gear drive. This drive is fully enclosed and runs in oil, and on account of its silent running and absolutely reliable features is admirably adapted to service where a high-grade vehicle is wanted, such as modern department stores and jewelers, and is especially suitable for ambulance equipment.

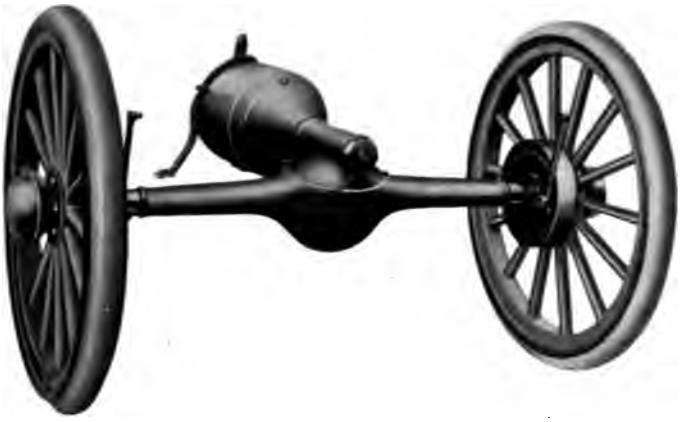
The medium capacity trucks are equipped with two motors with spur gear drive, the motors being mounted directly at the wheels. The gears are fully enclosed and run in oil. The heavier trucks are equipped with four motors and spur gear drive, the motors on these vehicles also being mounted directly at the wheels with gears fully enclosed. This system is proving to be reliable in service, and especially free from troubles, and it makes a neat, clean, silent vehicle. The controller on all of these vehicles is mounted at the base of the steering mast as part of the chassis and independent of the body.

Winter is here. An electric radiator in the bathroom will give it the temperature of summer.

A Type of Electric Wagon Built by the Commercial Truck Company of America

The Chapman Electric Neutralizer

THE Chapman Neutralizer is a device for removing the great difficulties experienced from the formation of static electricity in paper. This static electricity causes the paper to stick to the cylinder, fly-sticks and other sheets of paper in the operation of printing. The attraction is so strong that it retards the speed of the most skilled operator to that of a novice and at times makes the printing of the sheet most difficult.



Power Plant of a Commercial Truck Company's Wagon

The Chapman Electric Neutralizer works on the following principle: A static charge of electricity spontaneously selects from a neighboring alternating charge the kind and quantity of electricity to exactly neutralize itself. The device described supplies the alternating charge by means of a small motor generator, while the power supplies direct current and consumes as much as two or three ordinary incandescent lamps turning out an alternating current at about 70-volt pressure. This in turn is passed through a transformer, where it is stepped up to about 8,000-volt pressure. It is then carried over specially insulated wires to the bar on the press. This bar on the press is composed of a large number of fine metal points set in porcelain insulation located about one and a half inches apart in a round steel tube with porcelain ends the length of the cylinder of the press from bearer to bearer. This bar is located as near the cylinder as possible at the guides; and as the sheet passes this bar the charge flows off and is neutralized.

This apparatus has been in use for about three years, with the result—a general adoption. Something over fifteen hundred are now running. It takes only a current of one-sixteenth candle-power light to run three presses. The first expense is practically the only one, and once installed the troubles from static electricity are over.

Electrical Kitchen Machinery on Shipboard

THE steamship *Orvieto*, the second of new Orient liners built by Workman, Clark & Company, Ltd, of Belfast, Ireland, to the order of the Orient Steam Navigation Company, Ltd, for the new Australian Government mail service (to go into force on February 1 next), will shortly be delivered. This steamer, which is thoroughly modern and up-to-date, contains many novel electrical appliances. The following descriptions of some of the kitchen devices are taken from a recent issue of *Engineering*, of London, Eng:

In the bakery there is an electrically driven dough-mixer, which is capable of mixing flour into dough in fifteen minutes. This consists of a revolving drum, mounted on an electric motor shaft, and having internal bars or kneaders. The baker's oven is heated with steam pipes, which are much cleaner than the fire oven, while the temperature is maintained constant to any desired extent. The area of the oven is forty square feet. There are also special appliances for making pastry.

Another interesting machine is the potato peeler, a machine which consists of a bucket, in the bottom of which there rotates a disk with corrugations covered with corundum. The potatoes are put into the bucket, and the rotation of the disc by reason of its formation, peels all in the machine in five minutes. The disk is mounted on a spindle which is driven by belt from an electric motor. During the process a supply of water flows through the bucket to carry away the peelings.

Chapman Electric Neutraliser

The dish-washing machines are also an interesting feature. These are designed to deal with 3,000 dishes per hour. The dishes are placed in specially constructed "baskets" designed to suit particular dishes, and thus they do not again require to be touched by hand during the cleaning or drying process.—*Electrical Review and Western Electrician.*

Barclay Hair Dryer. The New York Edison Company is using one of these dryers very successfully for drying plates in its photographic department

Destructive Boiler Explosion in Milwaukee

FROM a recent issue of *Power and the Engineer* we quote some facts concerning the most disastrous boiler explosion in the history of Milwaukee, which occurred at the plant of the Pabst Brewing Company.

The explosion happened about 4:30 A. M. at which time the only persons in the building were two firemen, one of whom, severely injured, was taken from the ruins shortly after the explosion and removed to a hospital. The

Eden Musee Adopts Edison Service

Edison Service

[illegible] West Twenty-third Street, is one of the best known amusement places in the city. The private plant formerly operated has been abandoned and Edison Service adopted

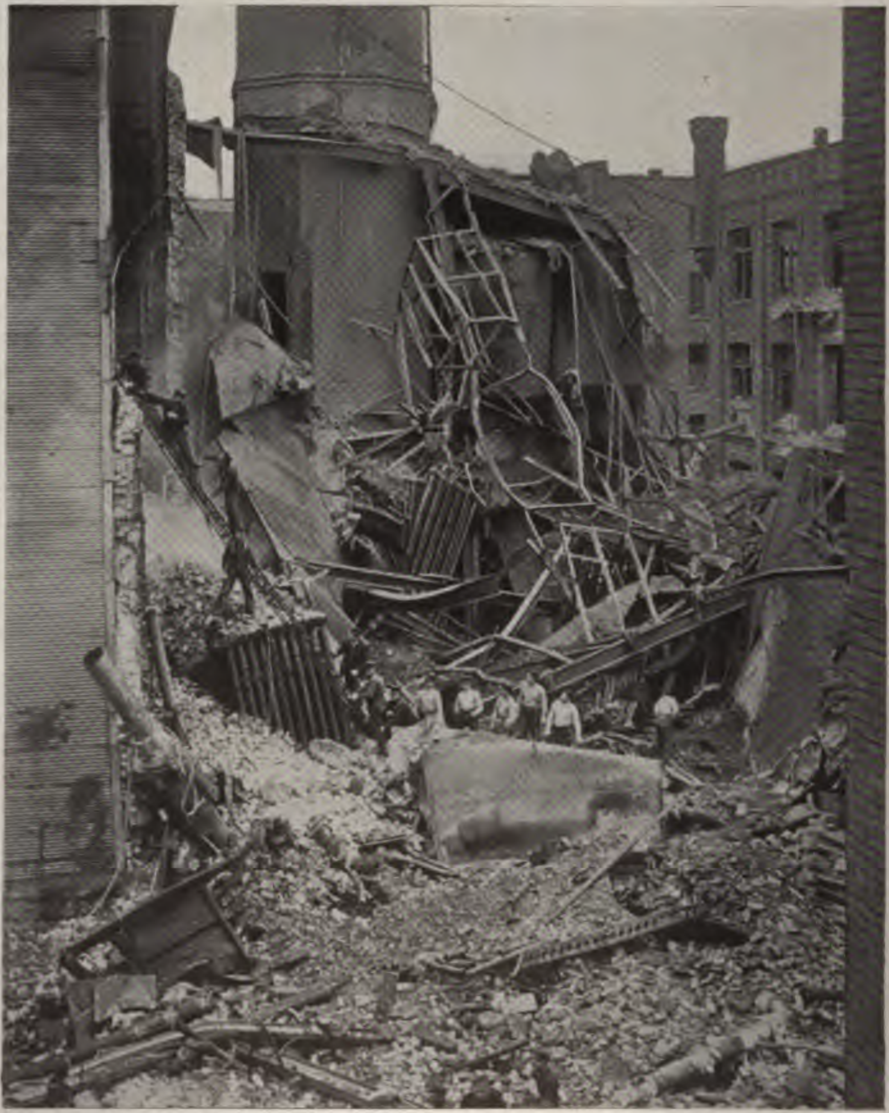
The Abandoned High-pressure Boilers

Part of the Abandoned Generating Plant

body of the other fireman was found later, buried in the débris.

The wrecked building was the newest addition to the mammoth plant of Pabst's brewery, and the exploded boilers had been in use less than two years. On October 9th last they had been subjected to an inspection by the Hartford Company, and were apparently in the best of condition.

It is estimated that the value of the property destroyed was between $250,000 and $300,000. Power from the Milwaukee Electric Railway Com-



Courtesy, Power and The Engineer

Power House of Pabst's Brewery After the Disastrous Boiler Explosion

pany's plant was immediately supplied through three 180-kilowatt transformers, temporarily installed, and operation was resumed in most of the departments of the brewery, as electric motor drive is quite universally used throughout the plant.

The Morningside Billiard Academy

AN excellent example of modern lighting is shown in the accompanying illustration of the Morningside Billiard Academy, at 290 Lenox Avenue, corner 125th Street. This is the second largest billiard room in New York, measuring 100 feet square and containing twenty-three tables. The Academy is owned by the Morningside Billiard Company and is under the direct management of Mr A Friebel, one of the best known and most thorough billiard managers.

The lighting installation consists of forty 100-watt tungsten lamps, sixty-nine 40-watt tungsten lamps over the tables, three tungsten lamps taking the place of six 16-candle-power carbon filament lamps.

The lighting is so perfect that no shadows are cast anywhere in the room. The installation was designed and installed by Mr Lawrence L. Strauss, contracting electrical engineer, of 13 East 125th Street.

Use Edison Service for light, heat and power.

An electric heating pad is a great comfort to people who suffer from cold feet.

A Notable Tungsten Lamp Installation, Morningside Billiard Academy, 290 Lenox Avenue, corner 125th Street. Electrical engineer, Mr Lawrence L. Strauss, 13 East 125th Street

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 503—Independence Electric Co
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 433—C T Pinkham & Co
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 25th St 130—N Y Electric Installation Co
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—The Tucker Electrical Con Co
West 33d St 209—E J Electric Installation Co
West 38th St 72—A J Buschman Co
West 40th St 213—Lord Elec Co
West 42d St 29-33—Germond & Turner
West 42d St 112-114—Oberg & Blumberg
West 42d St 316—J F Baker & Co
West 45th St 100—F A Bohling
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky

East of Broadway and Fifth Avenue

Beekman St 1—Electric Motor Insp & Repair Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—Johnson Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 25th St 122—Isador Fajans
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82-84—Mfgrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 119—Kelting Engineering & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Electric Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

Bronx

Baker & Fox—313 East 141st St
Evans & Karstner—1 Madison Ave
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Av
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
The Westchester Electrical Equipment Co—34 No Broadway
Thomson A—83 Waverly St
Underhill Harry—Bronxville N Y

THE EDISON MONTHLY

JANUARY

1910

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES		*TELEPHONE*
115 Delancey St	:	Orchard 1960
124 West 42d St	:	Bryant 5262
839 Third Avenue	:	Plaza 6543
27 East 125th St	:	Harlem 4020
360 East 149th St	:	Melrose 3340

EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

Territory Served by the Various Supply Offices

FIRST AND DELANCEY STREET DISTRICT, 546 PEARL STREET

All territory South of Eighth Street from the East to the North River

TELEPHONE No WORTH 3000

SECOND DISTRICT
115 WEST 39th STREET

Eighth Street to Fifty-ninth Street, both inclusive, from the East to the North River

TELEPHONE No BRYANT 145

THIRD DISTRICT
173 WEST 107th STREET

North of Fifty-ninth Street from East to North River to and including One Hundred and Thirty-sixth Street, east of St Nicholas Avenue, and to the north side of One Hundred and Thirty-fifth Street west of St Nicholas Avenue

TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT
149th STREET AND RIDER AVE

All territory lying within the Borough of the Bronx

TELEPHONE No MELROSE 3330

"At Your Service"

The Edison Monthly

January 1910

VOLUME II NUMBER 8

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EDITORIAL

THE EDISON MONTHLY
PUBLISHED BY
THE NEW YORK EDISON COMPANY
GENERAL OFFICES:
55 DUANE STREET, NEW YORK CITY

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The new electric illumination of Central Park begins as The Monthly goes to press. It is accomplished with tungsten lamps, giving about sixty sustained candle-power, placed along the edges of the various driveways and walks. For the first time in history with the exception of some isolated and limited areas, the Park is well illuminated.

◆

The problem was not an easy one. For service of this character the distances were relatively great, and as the city authorities would not, as they should not, permit overhead wires, the conductors had to be placed underground, greatly increasing the cost.

◆

With the exception of the extreme outlying districts, the usual city lighting can be supplied jointly with commercial service. Mains supplying street lamps passing through residential and business districts are generally available for private consumers. The investment and maintenance costs may be divided, therefore, between the several classes of service.

In the Park, however, there are no private consumers, and the expenses incidental to the equipment must be made within the revenue derived from the lighting alone.

◆

In the past, with or without reason, many have been afraid to enter the Park at night. This will no longer be a deterrent, as it may be visited with a degree of safety equal to that found in any of the other thoroughfares of the city. The change again suggests the value of good light as a means of protection, as well as enjoyment, convenience and usefulness.

◆

"New York, the City of Light," is a term not entirely misapplied. Under the wisely directed and far-seeing efforts of our city officials, each recent year has marked notable improvement in public illumination. Some years ago our city was considered the worst of all the world's great cities in this respect. To-day it excells Paris, Berlin and London in the illumination of its principal thoroughfares and in the careful attention that has been given the less prominent parts.

◆

At this time of the year the proper ventilation of offices is a subject of vital importance. Nothing impairs the efficiency of an office force more than vitiated air, to say nothing of the injury to the health of the employees.

In most old buildings and in many new buildings the ventilating system, if one exists, is inadequate to fulfill the requirements, and some means has to be provided to supply fresh air. The electric fan has many useful applications for effecting the desired result. By cutting a circular aperture in a window pane and placing a fan on a shelf so that the blades conform with the opening the bad air can be rapidly exhausted from a medium-sized room.

◆

For large rooms and places of public assembly the larger sizes of electric fans or exhaust fans form an ideal means of ventilation. They may be placed at one end of a room, near the ceiling, and an inlet for fresh air provided at the opposite end of the room. By this means a perfect circulation of fresh air can be obtained without the slightest draft, to which many people are so susceptible.

There are several types of mechanical ventilators now on the market for office and store use that not only supply a current of fresh air, but heat it at the same time. One of these types is described in this issue of THE MONTHLY.

◆

Attention is again drawn to the availability of pneumatic cleaning machines for public halls and thoroughfares. The New York approach to the Brooklyn Bridge offers an illustration. It is the practice to sweep this approach each morning, as hundreds of thousands of people pass through it. However much care is exercised, it is impossible to prevent the circulation of the dust and all that accompanies it, and its breathing and rebreathing countless times.

All this could be avoided by the simple installation of a pneumatic cleaning plant. Its operation would be very inexpensive. In all probability the total cost, including the fixed charges incidental to the investment, would be less than at present.

These machines are now installed in many, if not all, of the large railroad yards, in many of our hotels and restaurants, and to a great extent in private homes. If desirable in these places, comparatively clean, how much more so on a confined public thoroughfare, passed and repassed by hundreds of thousands daily.

◆

We again wish to call the attention of the users of horse-drawn vehicles for commercial purposes to the advantages of electric automobiles. In winter especially when the pavements are almost impassable for horses on account of ice and snow, horse delivery is exceedingly slow and expensive.

Electrics are not affected by weather conditions and can do the work of twice their number of horse-drawn wagons at no greater cost. We are "at your service" in this as in all other ways electrical.

◆

In the December number a picture of the Barker appeared as the Barclay Hair Dryer. The manufacturer of this excellent device is James Barker, Inc, of 17 West Forty-second Street.

New Building of the Glengarry Realty Company

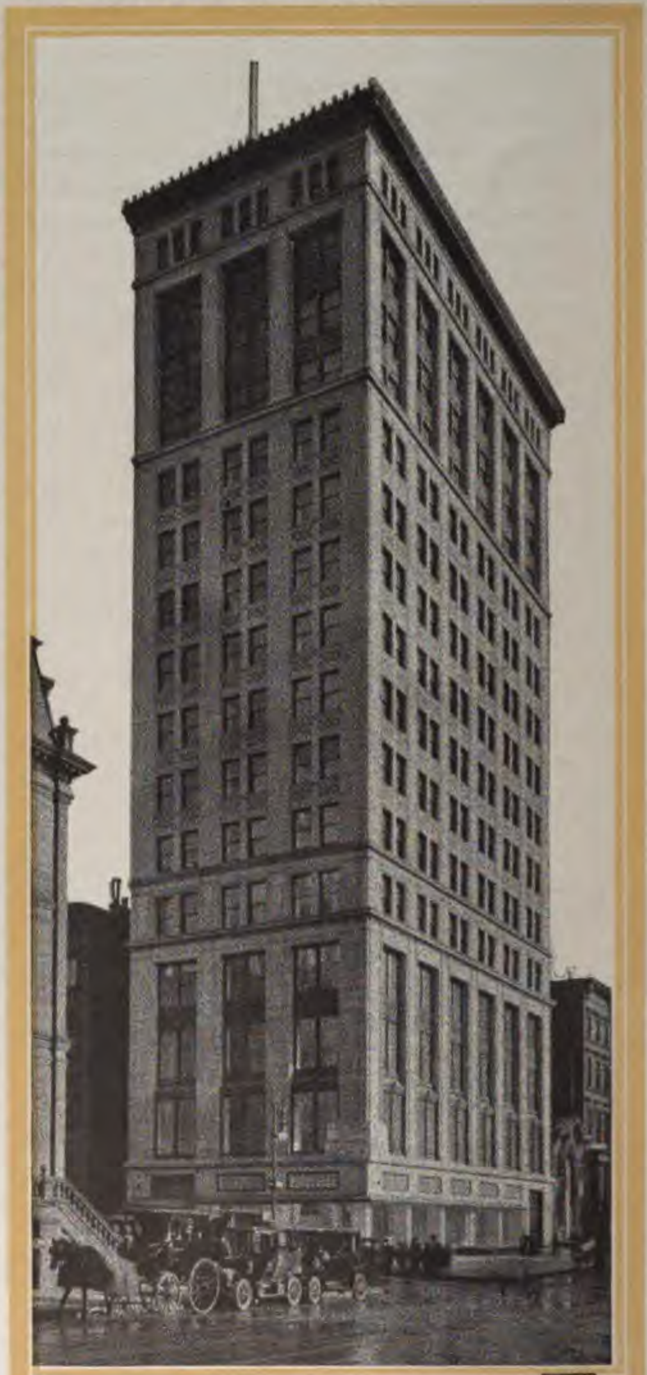
THE above company has erected a sixteen-story office building at 185 and 187 Madison Avenue, corner Thirty-fourth Street.

The owners have adopted Edison Service. An isolated plant was included in the original specifications, but the plan was abandoned after the merits of Central Station current were investigated.

Auto-Trucks for the American Express Company's Use

IT has no doubt been noticed recently that many of the large express companies operating in and around the city are displaying a decided tendency toward the use of the motor truck.

After having used five electric vehicles for about fifteen months and fifteen gasoline trucks for nearly nine months, the management of the American Express Company is very well satisfied, and is con-



New Office Building Erected by the Glengarry Realty Company at 185 and 187 Madison Avenue, corner Thirty-fourth Street. The architects were Messrs Clinton & Russell, 32 Nassau Street. The electrical installation consists of about 3,000 incandescent lamps and 200 horse-power in motors templating a more extensive use of motor vehicles in the future. The company keeps complete records of the operation of the machines, and of the cost of operation and maintenance. Up to the present time the records show that the motor wagons do about thirty per cent more work than the horses and wagons used by the company, while the total expense for operation and up-keep has been just about the same for a three-ton motor wagon as for a three-ton horse wagon and four horses. One team of horses works but half a day.

The electric equipment consists of one one-ton, one two-ton and one three-ton General Vehicle Company's wagons, and one one-ton, and one two-ton Baker Motor Vehicle Company's machines. These electrics are used exclusively in the work of distributing express packages from the main depot at Madison Avenue and Forty-seventh Street. They have been found ideal for this work, in which a limited mileage is sufficient and stops are frequent. As compared with the gasoline cars, the cost of operation is slightly in the latter's favor. They are operated, however, only on Manhattan Island and do not run above 110th Street. They average thirty miles a day, and make an average of sixty stops for deliveries. This does not exhaust their battery charges, as on a test one of the wagons was run fifty-five miles on one charge, and all the wagons will run thirty-five or forty miles on one charge. For distribution work thirty miles is sufficient, because of the many stops that must be made.

Although the company has not yet tried one of its gas motor trucks in distribution work, it is believed that the electric is economically superior in this service, because of the tendency of a driver to allow the gas engine to run when the gas motor truck is standing during the period required to deliver a package from the vehicle to the consignee.

The saving of time and trouble is of vital interest in every business. Having electric irons in your establishment will save time and trouble and insure better work.

Turbo-Electric Propulsion for Ships

AT the opening meeting of the Glasgow (Scotland) Students' Section of the Institution of Electrical Engineers, Chairman H A Mavor, in his inaugural address, told of his proposed plant for electrical propulsion of ships by plant consisting of steam turbines, generators, and motor-driven propellers.

Mr Mavor pointed out how skeptical marine engineers were of this type of gear, as its advantages were not apparent from general principles. A constant speed of the ships did not mean a constant power, as the power for any fixed speed altered with load, tide, wind, etc, so that an efficient change gear would result in great economy. With direct steam drives, subdivision of the plant was impossible, while electric driving lent itself to this.

Mr Mavor's method would consist of high-pressure and low-pressure turbines driving generators having different frequencies, these generators being connected to a motor having a different stator winding for each generator, and each winding having a different number of poles. Thus a series of propeller speeds could be obtained with constant speed on the turbines. In this arrangement there would be no resistances or other wasteful devices used for obtaining speed variation, and the switch gear would be very simple, as no synchronizing would be required.—*Electrical Review and Western Electrician.*

New building of the B F Goodrich Company, located at 1780 and 1782 Broadway, at Fifty-seventh Street. The architects were Messrs Wade & Willaner, 156 Fifth Avenue. The builders were Messrs A J Robinson Company. The electrical installation consists of about 3,000 incandescent lamps and 400 horse-power in motors

Wireless Demonstrations

MR A Frederick Collins, inventor of wireless telephony, during a lecture on wireless telegraphy, magnetism, telephony and high frequency apparatus recently given at the Newark Y M C A, lit incandescent bulbs and vacuum tubes by wirelessly directed electric energy. He also illuminated a string of lamps with boys acting as the wires, forty-thousand volts of static electricity passing through their bodies in circuit.

A series of interesting experiments in animal magnetism electricity, wireless telegraphy and wireless telephony were given. The audience was the biggest ever held by the Newark Y M C A, and was composed of members of the State Science Association, doctors and surgeons and local business men.

The World's Electric Progress

SAYS the *Office Digest:*—

Twenty-five years ago you could not telephone to a friend.

Ride on the trolley cars.

Cool the rooms in hot weather with an electric fan.

Turn on the common electric light.

Send a wireless message to your relatives on shipboard.

Set your watch by an electric clock.

Purchase an electric automobile.

Walk in safety in the city streets in the glare of arc lamps.

Cook by electricity.

Ride behind an electric locomotive.

Do the family ironing out of doors without fire.

Drive all machinery with motors.

New building at 38 to 44 West Twenty-sixth Street, occupied by the Crown Embroidery Works. The architects and builders were Messrs E E & T Hinkle, 534 West Fifty-sixth Street. The electrical installation consists of 3,000 incandescent lamps and more than 200 horse-power in motors

Manhattan Theatre, formerly Messrs Smith, Gray & Company's building, Broadway and Thirty-first Street. The architect was Mr Thomas W Lamb, 24 Fifth Avenue. The electrical installation consists of about 4,000 incandescent lamps and 100 horse-power in motors. A private plant was formerly operated in this building before it was remodeled, but it has been taken out and Edison Service substituted

Live in a house without a chimney.

Keep warm by electric heat.

Develop out-of-the-way water power and transmit that power to the cities.

Ride on an electric elevator.

Listen to the telharmonium.

Take an electric message or listen to an electric phonograph.

You can heat electric irons in a short time by the simple turn of a switch, and they stay hot as long as you want them to. There is no hot, dirty stove to bother with when you use electricity for heating.

An electric hair dryer is a delight to the ladies.

Some Applications of Electric Motors

The machines enumerated below can be advantageously operated by direct connected motors:

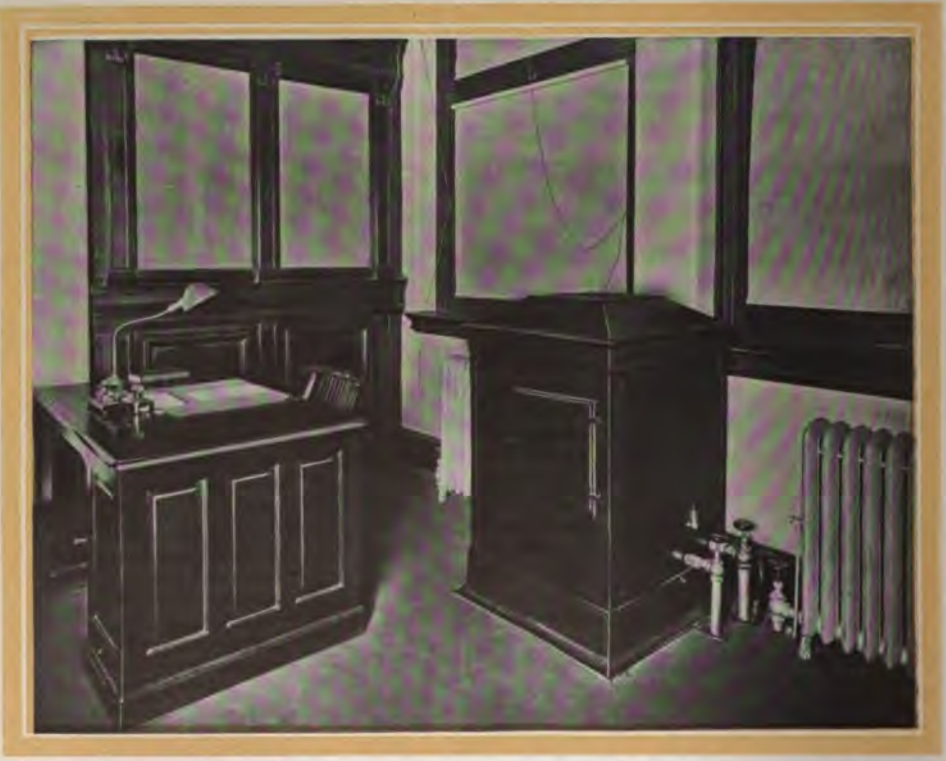
- Addressing machines.
- Advertising devices—moving
- Agitators
- Air compressors
- Auto-stokers
- Automatic piano-players
- Bag-making machinery
- Baling machines
- Barkers—pulp mills
- Barrel washing and scrubbing
- Blacksmith blowers
- Blue printing machines
- Book conveyors
- Boot and shoe machinery
- Bottle blowers
- Bottle cleaners
- Bottling machinery
- Bread crumbing machines
- Bridges—roller lift
- Bridges—swing
- Bridges—elevators
- Bucket conveyors
- Buffing lathes
- Cable covering machinery
- Cake mixers
- Candy pullers
- Capstans
- Car wheel grinders
- Carpet cleaning machinery
- Cash carriers
- Cement plants—ball mills
- Cement plants—conveyors
- Cement plants—crushers
- Cement plants—kilns
- Cement plants—tube mills
- Chippers—pulp mills
- Chippers—beef
- Churns
- Cider mills
- Circle swings
- Coal cutters
- Coal crushers
- Cocoanut grinders
- Coffee grinders
- Coffee roasters
- Cake and cracker machines
- Concrete mixers
- Copper converter
- Corn shellers
- Cranes—charging
- Cranes—gantry
- Cranes—jib
- Cranes—overhead traveling
- Cream separators
- Derricks
- Dough mixers
- Dough kneaders
- Dredges—all kinds
- Drills—fixed and portable
- Drying machines
- Dumb waiters
- Egg beaters
- Elevating and conveying machinery
- Elevators—freight
- Elevators—passenger
- Emery wheels
- Ensilage cutting machines
- Envelope machines
- Envelope sealers
- Escalators (inclined stairways)
- Fans—blowers—forges
- Feed grinders
- Floor planers
- Floor polishers
- Flour rolls
- Fodder cutters
- Fourdrinier paper machines
- Fruit cleaning machines
- Fuel economizers
- Glass grinding machines
- Grain dryers
- Grinders—all kinds
- Grindstones
- Hay baling presses
- Hay cutters
- Hay forks and hoists
- Hoists—coal
- Hoists—docks, construction, cableways
- Hoists—mining
- Hoists—ore
- Hoists—skip
- Horse clipping and currying machines
- Ice cream freezers
- Ice crushers
- Ice handling machinery
- Jordan engines—pulp mills
- Knife grinders
- Lathes
- Laundry machinery
- Linotype machines
- Locomotives—industrial, mine, switching
- Looms—all kinds
- Machine tools—all kinds
- Mailing machines
- Marble lathes
- Mashing machines
- Meat choppers
- Merry-go-rounds
- Monotype machines
- Moving platforms
- Ore conveyors
- Ore crushers
- Organ blowers
- Ovens—mechanical reel
- Paint grinders and mixers
- Paper bag machines
- Peeling and paring machines
- Pile drivers
- Potato peelers
- Presses—hydraulic and others
- Printing presses and auxiliary machinery
- Pulp mills
- Pumps—all kinds
- Refrigeration
- Roller coasters
- Roll mill tables
- Rope making machinery
- Sausage stuffers
- Saws—all kinds
- Saw sharpeners
- Screens—for pulp mills
- Sewing machines
- Shearing machines
- Shredding devices
- Shute the shutes
- Silk mills—machinery
- Steering gears
- Stitching machines
- Stone crushers
- Stone dressers
- Stone planers
- Talking machines
- Threshing machinery
- Transfer tables
- Tumbling mills
- Valves—steam, water, air
- Vegetable graters
- Ventilating fans
- Washing machines
- Wet machines
- Winches
- Wire covering machines
- Wire cutting and deposit machines
- Woodworking tools
- Wood splitting machines
- Wringing machines

Garner Mechanical Ventilating Machines

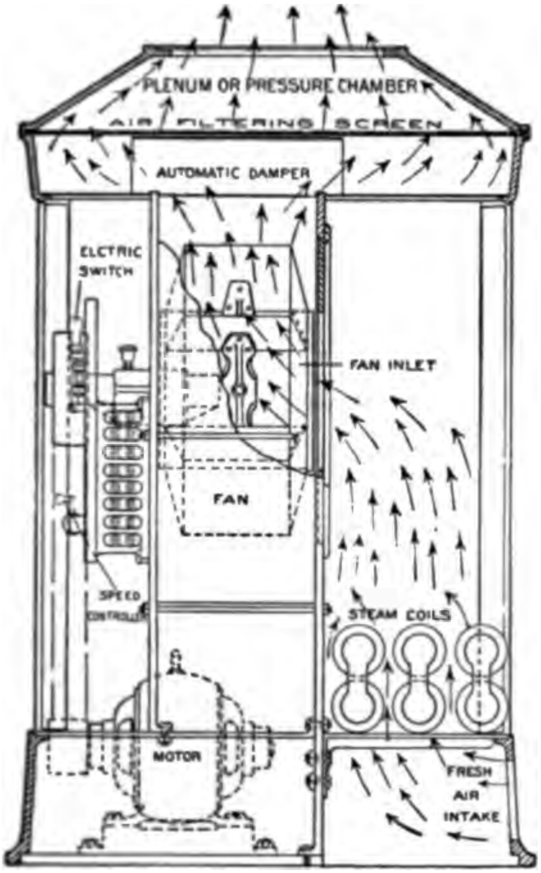
AS defined by Dr John S Billings, an authority on ventilation, "perfect ventilation means that any and every person in a room takes into his lungs at each respiration air of the same composition as that surrounding the building, no part of which has recently been in his own lungs or those of his neighbors, or which consists of the products of combustion generated in the building, while at the same time he feels no currents or drafts of air and is perfectly comfortable as regards temperature, being neither too hot nor too cold."

Air moves naturally from but two causes, one, the action of the winds, the other, difference in temperature, whereby cold air, being heavier than warm, falls, moving the warm lighter air upward.

As neither of these causes can be depended upon, open windows, openings in windows and all kinds of natural ventilating devices cannot ventilate properly.



Garner No. 2 Mechanical Ventilator, in the offices of Messrs N W Harris & Company, Bankers, corner of Pine and William Streets, New York City



Sectional View of Garner No 2 Mechanical Ventilator. Size, 30 x 30 x 46 inches. Guaranteed capacity 75,000 cubic feet of fresh air per hour, delivered without draughts at a comfortable temperature

It is quite evident that the only way to insure good ventilation at all times is to provide a mechanical means of bringing in the required amount of fresh air from the outside. This fresh air should be cleaned, delivered without injurious draughts and at a comfortable even temperature.

The Garner Mechanical Ventilating Machines will do all this, and they can be installed anywhere, in old or new buildings, without inconvenience to the occupants or interference with business during the installation.

The No 1 machine is made especially to ventilate small offices and homes. It is so constructed that it may be placed on a window sill, the fresh air being supplied by means of a duct leading through a panel under the window directly behind the machine.

The machine contains a centrifugal fan connected directly on the shaft of an electric motor which secures its power through an ordinary electric cord attached to any lamp socket.

A connection with the steam or hot water pipes furnishes the heat for the radiating surface within, over which all the air must pass and this warms the air whenever desired.

The fresh air is delivered through the register or grill in

Garner No 1 Mechanical Ventilator. Size, 17 x 14 x 10 inches

front in an upward current, thus touching no one, and strikes the ceiling with sufficient force to spread over the entire upper part of the room first and then gradually presses the cooler and heavier foul air nearest the floor out under the doors or other places where it may escape.

Electric Hair Dryer in the Hair-dressing Parlors of Mrs Birch, at Yonkers, New York

The No 2 machine has a capacity of about six times that of the No 1 ventilator, and will ventilate a correspondingly larger office or room of any kind.

It is a complete ventilating system in itself and especially designed for installation directly within the area to be ventilated. In very large offices or factories several of these ventilating machines may be distributed over the room, thus saving the expensive duct work necessary on a large built-in system.

The fresh air supply is drawn into the machine through a duct leading to a nearby window or any other opening, passes over a set of specially designed steam coils into the side of the centrifugal fan, which forces it out through the register or grill at the top of the machine.

Just before the fresh air leaves the machine it passes through a very fine wire mesh screen, which completely removes all the dust and dirt.

The fan is driven by an electric motor which is practically noiseless in operation and the current consumed is very small.

The machine requires very little attention, as anyone can start it by merely turning on the current.

The ventilating requirements of any enclosed space, regardless of size, number of windows or weather conditions, can be fully met by the installation of one or more of these Garner Mechanical Ventilators.

An Electric Vibrator in the Same Establishment

The fresh air, being introduced under pressure, forces itself into the farthermost corner of the room and the foul air by the same pressure is removed at the same rate as the fresh air is introduced. By this method all of the fresh air is brought down to the breathing line, the only place where it can be of any benefit. It does not pass over the heads of the occupants of the room in a straight line current from inlet to outlet, as in the case of an exhaust system, leaving the air outside the path of the current untouched and unchanged.

A complete change of air in every part of the room is an absolute essential in order that good ventilation may be assured.

The Garner Mechanical Ventilators carry out exactly what Dr. Billings has defined as "perfect ventilation," and the users of these machines may be absolutely certain that they are

Electric Curling Iron in Use in Mrs Birch's Establishment

obeying both the letter and the spirit of the ventilating laws of the State of New York.

These machines are made by the Garner Ventilating Company, H B Shontz, Manager, 140 Liberty Street, New York City.

Some Large Contracts Recently Closed

THE New York Edison Company has recently closed a contract with the Columbia Building and Theatre Company to supply the new Columbia Theatre, at the corner of Seventh Avenue and Forty-seventh Street, with Edison Service. The installation will include about 5,000 incandescent lamps and 100 horse-power in motors.

Contract has also been made to supply the Globe Theatre, 1555 Broadway, corner of Forty-sixth Street, with current for about 6,000 incandescent lamps and more than 100 horse-power in motors.

Another large contract is for Edison Service to supply the new eighteen-story loft building in course of erection at the southwest corner of Fourth Avenue and Twenty-fifth Street. The installation will include 7,000 incandescent lamps and 500 horse-power in motors.

The Manhattan Theatre Building

THE Manhattan Theatre, 1241 and 1243 Broadway, formerly occupied by Smith, Gray & Company, has been entirely remodeled, and is now occupied by the largest moving picture show in the city.

The private plant formerly operated has been abandoned and Edison Service adopted for light and power.

Diary of An Up-to-Date Man

SOME people think it costs a lot of money to be thoroughly well groomed and up-to-date, but the following tabulation of what it costs a bachelor, who uses modern labor-saving appliances instead of a valet, to present himself every morning at the bank the perfect pattern of a well-groomed man, will dispel that idea. Here is the record for an average morning:

	Electric Current, KW Hours
Rose at seven and took an electric bath, for which the current used was	.3333
Heated bedroom for half hour with electric stove	.5000
Heated water for shaving on electric stove	.0333
Used electric boot cleaner	.0133
Pressed trousers with electric iron	.0400
Ironed silk hat with electric ironer	.0333
Kneaded dough for a loaf of bread with electric kneader	.0066
Boiled a pint of coffee on electric stove	.0666
Cooked a chop by electricity	.0666
Aired my room with electric fan	.0238
Turned on electric piano while I ate my breakfast	.0500
Cleaned the knives and forks with electric cleaner	.0010
Polished the plates with electric polisher	.0050
Curled my moustache with electric curling iron	.0025
Lighted a cigar with electric lighter	.0003
Rode in electric elevator to the basement	.0033
Drove my Waverley electric four and a half miles to the bank	1.0000
Total kilowatt hours	2.1789

for which I pay ten cents per kilowatt hour, or twenty-two cents in all. This does not take account of the current used in my electric clock, but as a single kilowatt hour will keep that running for ten years it seems safe to disregard the clock."—*Exchange*.

Tungsten Lighting Installation in the Lion D'Or Cafe, 59 and 61 West Twenty-fourth Street, near Sixth Avenue, New York City

EDISON SERVICE

The Longwoods Apartments on Longwood Avenue, between Kelly and Beck Streets, the Bronx. There are two electric elevators, a vacuum cleaning system and electric pumps in this building aside from the lighting installation. Edison Service is used throughout

The Longwoods Apartments

THE Longwoods, occupying the block front on Longwood Avenue, between Kelly and Beck Streets, is the most recent addition to high-class elevator apartments in the Bronx.

They are liberally planned, with wide private halls, and the rooms all well lighted and ventilated. The parlors, libraries and dining-rooms are grouped, and may be thrown together for entertaining purposes. The apartments consist of suites of four, five and six rooms and baths, all with large foyer halls.

Electric lights, long distance telephones and shower baths are provided in each apartment.

The building is equipped with two elevators, a vacuum cleaning system and electrical pumps. It is owned by the Reutiel Construction Company.

Electric Vehicles

NOW that winter is at hand the electric automobile should receive renewed attention, as it is in no way a fair-weather car. It is quite the contrary, and as a matter of fact, the only satisfactory car throughout the year. There is no water to freeze, no lubricant to grow heavy at low temperature, and if desired, it can be closed more tightly against wintry blasts than any other form of vehicle. Its extreme simplicity, its readiness to go at any time and under any conditions, make it the ideal car for disagreeable weather.

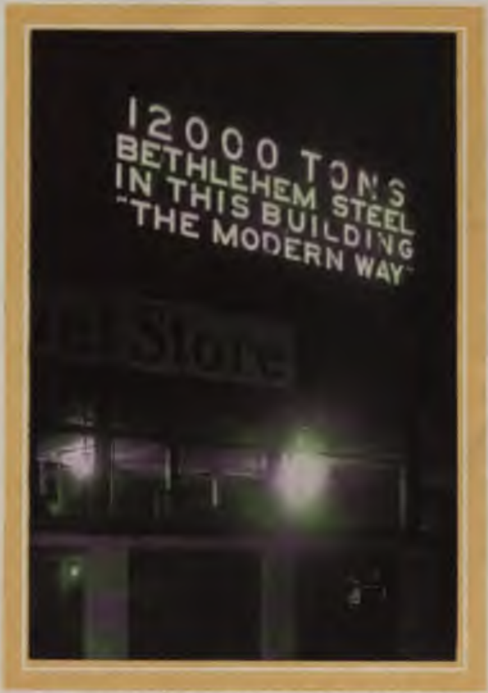
The Bronx Theatre

THE rapidly growing Borough of the Bronx has at last secured an exclusive, high-class theatre devoted to superior vaudeville, ground for which was broken in February, 1909. Situated at Melrose Avenue and 150th Street, in the logical center of the ever-increasing community and at the most important transfer point north of Times Square, its location could hardly be improved upon.

The building stands at the northwest corner of the above-mentioned streets, the main entrance leading from Melrose Avenue. Exclusive of two twelve-foot exit courts, one at the south side and one at the rear, the theatre measures eighty-five feet on Melrose Avenue by 163 feet on 150th Street.

Portable Vacuum Cleaner in the Longwoods Apartments

On either side of the spacious lobby, twenty-five feet in width, are two large stores, while the upper portion of the front building is given to a large



A Fine Example of Electric Advertising at Thirty-third Street, near Broadway

assembly hall with offices on the third floor. The lobby is very attractive, with its marble walls and elaborate ceiling paneling. The roomy foyer measures no less than nineteen feet standing room depth at the center.

Two very important features of the auditorium are the absence of posts, thus giving an unobstructed view of the stage from every seat, and the width of the aisles.

The electrical equipment is very complete in every respect, and has two sets of direct primaries from the power house of The New York Edison Company, entering the building at two separate points and are cross-connected in such a way that it is impossible to be without service; therefore light is assured at all times.

A large ventilating fan is provided and connected with various points in the auditorium, balcony and gallery, thus insuring proper ventilation.

Electric Sign on Construction Work

THE Philadelphia firm of Gimbel Brothers is erecting an enormous department store between Thirty-second and Thirty-third Streets, on Greeley Square, which will be the largest of its kind in the world.

The contract for the structural steel work is such a great and unusual one that the Bethlehem Steel Company, which is supplying the material, has felt justified in calling public attention to it through the medium of a large electric sign placed on the front of the building. This sign reads: "12,000 Tons Bethlehem Steel in this Building. 'The Modern Way,'" and contains 800 2-candle-power lamps, being operated by means of a flasher which presents one line at a time until all are lighted, when all go out, then on and repeats. The sign is turned on every evening at dusk and burns for seven hours.

The entire equipment was supplied by the Metropolitan Engineering Company, 1250 Atlantic Avenue, Brooklyn.

Goodrich Building

THE B F Goodrich Company of Akron, Ohio, have recently erected a new twelve-story building at 1780 and 1782 Broadway, corner of West Fifty-seventh Street.

Edison Service has been adopted for light and power.

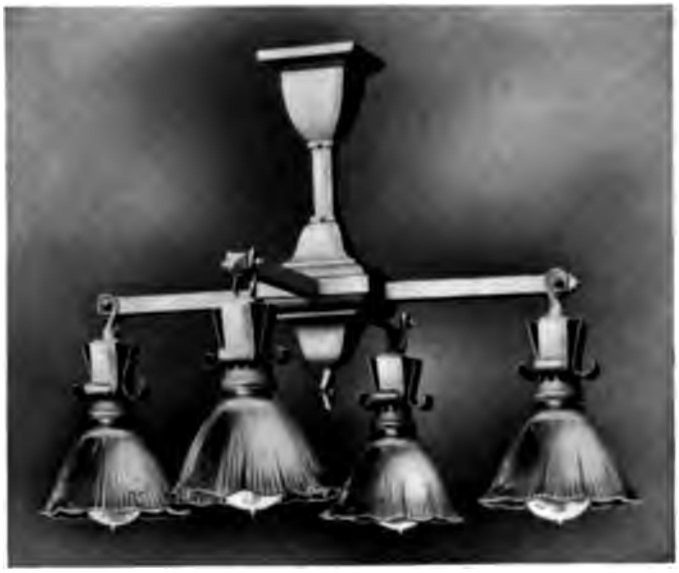
Electrical Ventilation of Buildings

MANY old buildings and some modern buildings are inadequately provided with proper ventilation. In many instances the expense of installing a proper system of ventilation in a building already erected is prohibitive.

This situation led to the development of electrically operated ventilators that can be placed in the various rooms or departments of a building at a nominal cost. These ventilators are of different forms, but accomplish the same result, that is, furnish an abundant supply of fresh air. One type of ventilator makes steam connection with a convenient radiator and draws a supply of fresh air from the outside and forces it into the room over heated coils by means of a motor-driven blower. Another type purifies the air by means of static discharges which generate ozone.

Either type is highly efficient and the cost of installation and maintenance is low enough to preclude all possible excuse for poorly ventilated rooms.

Edison Service is safe, clean and economical



Four Light Tungstolier

The Tungstolier Folding Fixture

THE illustration on this page shows a unique fixture for use with tungsten lamps. Its chief characteristic is an anti-vibratory spring coil enclosed in the canopy, designed to prevent vibration, thereby prolonging the life of the lamp. The tungstoliers are manufactured by The Tungstolier Company, which maintains an engineering department whose services are offered gratuitously to dealers and contractors who endeavor to maintain a high standard of illumination.

Crown Embroidery Works

A NEW twelve-story building has been erected at 38 and 44 West Twenty-sixth Street by Messrs E E & T Hinkle, which has been leased to the Crown Embroidery Works.

The building, shown in the accompanying illustration, is supplied with light and power from Edison Service.

Electrical Advertising by Betts & Betts, Inc.

ONE of the largest builders of commercial electric signs in this country are Messrs Betts & Betts, Inc, whose New York factory, containing 10,000 square feet of floor space, is entirely devoted to the making of outdoor electric signs.

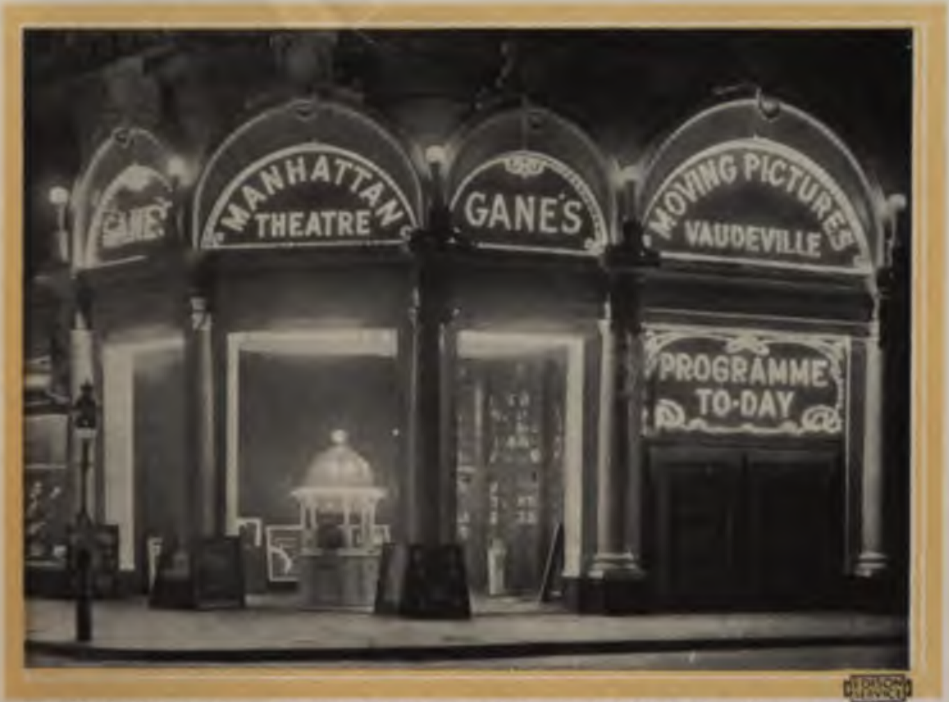
A great many of the large signs and decorations for the Hudson-Fulton Celebration were built and installed by this company, without any sub-letting. Their recent Bulletin No 57 describes in detail most of these signs.

Several of them are described below and include the world-famous sign on Colgate & Company's factory, overlooking the North River, oppo-

Factory of Betts & Betts, Inc

site Cortlandt Street. For the Celebration they also constructed an immense flash sign showing the "Half Moon" and the date "1609" alternating with "Colgate" and the date of the founding of the firm, "1806." Five thousand two hundred 4-candle-power lamps were used to represent the dimensions of the original craft, the exact size in electric light. The sign was 170 feet long and 70 feet high.

Another factory belonging to this firm is located at Phœnix, N Y, where all their small novelty flash window signs are manufactured. Over 45,000 of these signs were shipped from there during the past year.



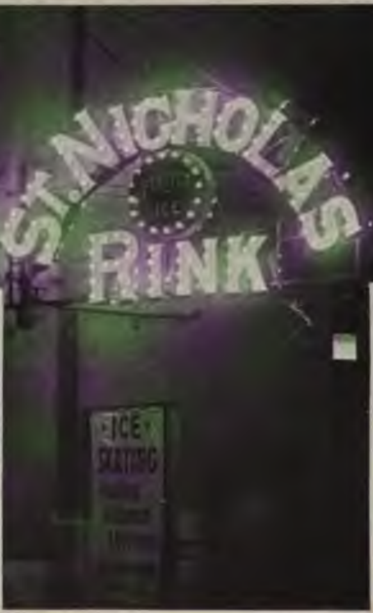
The Manhattan Theatre at corner of Broadway and Twenty-eighth Street with its signs and other lights is one of the most brilliant places on the "Great White Way"

the rolling water beneath it, the spray thrown from the prow, and the waving flags in color on the mastheads.

The "Half Moon" was 58.7 feet along the water line, and the hull measured 78.9 feet over all. The mast of the ship rose 66 feet above her water line. As stated, 5,200 incandescent lamps were required to outline

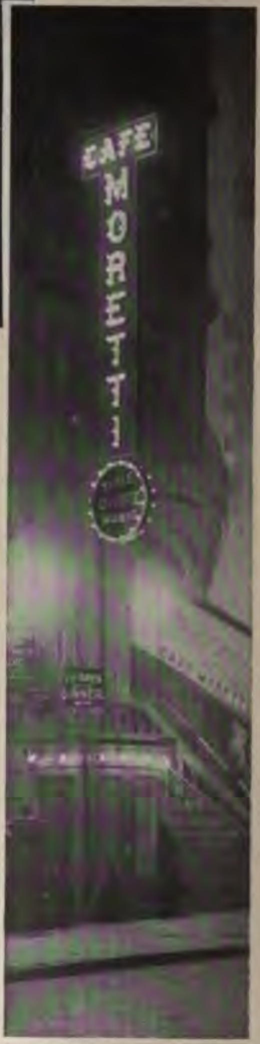
Betts & Betts, Inc, have offices in Boston and Chicago as well as in this city. Their headquarters in New York is at 1358 Broadway. A very attractive sign bearing their name has occupied a prominent position during the past year at Broadway and Thirty-sixth Street.

Edison Service is always reliable.



Sign Erected by Betts & Betts at the St Nicholas Rink

This Beautiful Sign on the Hotel Woodward is another example of Betts & Betts work



Attractive Sign Installed by Betts & Betts on West Thirty-fifth Street

The Famous "Half Moon" Sign Made by Betts & Betts that attracted so much favorable attention during the Hudson-Fulton Celebration

Electric Automobiles at the Coming Show

AT the Tenth Annual Automobile Show that is to be held at Madison Square Garden, January 8th to 15th inclusive, there will be exhibits of electric automobiles as follows:

General Vehicle Company:

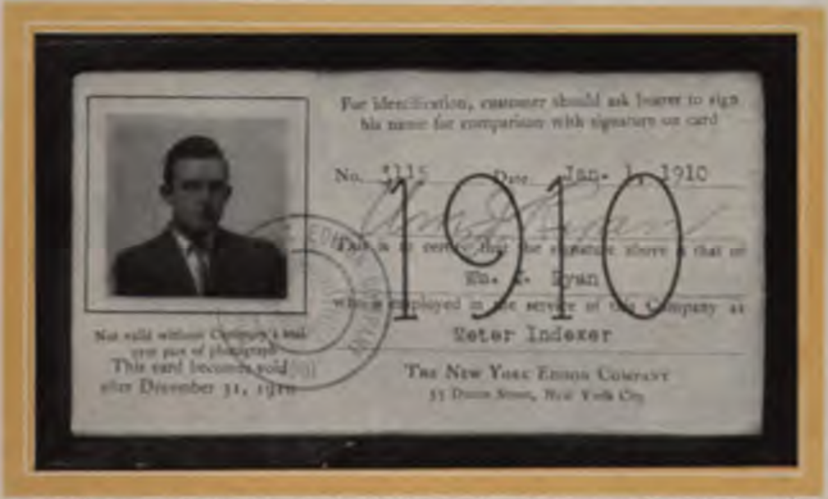
- One 1,000-lb delivery wagon
- One 2-ton chassis
- One 5-ton beer truck

Studebaker Brothers Company:

- One Model 25 light delivery wagon
- One Model 26 chassis, for medium load
- One Model 24 truck, for heavy loads

Baker Vehicle Company:

- One 1,000-lb delivery wagon
- One 2,000-lb delivery wagon
- One 4,000-lb truck, express type



For identification, customer should ask bearer to sign his name for comparison with signature on card

No. 3115 Date Jan. 1, 1910

1910

This is to certify that the signature above is that of

Wm. K. Ryan

who is employed in the service of this Company as

Meter Indexer

The New York Edison Company
55 Duane Street, New York City

Not valid without Company's seal over part of photograph
This card becomes void after December 31, 1910

The New 1910 Identification Card with photograph and signature of employee and seal of Company stamped on part of photograph. A card like this is carried by every representative of the Company meeting the public and will be shown upon request of customer

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 503—Independence Electric Co
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 433—C T Pinkham & Co
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 25th St 130—N Y Electric Installation Co
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 26th St 11 Thos L Dillon
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—The Tucker Electrical Con Co
West 33d St 209 —E J Electric Installation Co
West 38th St 72—A J Buschman Co
West 42d St 29-33—Germond & Turner
West 42d St 112-114—Oberg & Blumberg
West 42d St 316—J F Baker & Co
West 45th St 100—F A Bohling
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky

East of Broadway and Fifth Avenue

Beekman St 1—Electric Motor Insp & Repair Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—Johnson Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 25th St 122—Isador Fajans
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82-84—Mfgrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 119—Kelting Engineering & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Electric Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

Bronx

Baker & Fox—313 East 141st St
Evans & Karstner—1 Madison Ave
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Ave
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
The Westchester Electrical Equipment Co—34 No Broadway
Thomson A—83 Waverly St
Underhill Harry—Bronxville N Y

The Edison Monthly

February 1910

VOLUME II NUMBER 9

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EDITORIAL

The Edison Monthly
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55 Duane Street, New York City

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As The Monthly goes to press, contracts have been concluded for the supply of electric current for the great Gimbel store, now in course of erection in this city. The installation will be one of the largest in the world.

* * *

According to the preliminary reports, there will be about sixty high-speed electric elevators for passengers and freight, several thousands of horse-power in motors, to be utilized for other purposes, and approximately 100,000 incandescent lamps for the illumination of the interior and its various parts and departments, for brilliant show windows and enormous electric signs.

* * *

The contract calls for about 10,000 horse-power of electrical service. It is significant that this service should be supplied from a Central Station, rather than a power plant located upon the premises. The Messrs Gimbel are to be numbered among America's greatest merchants. They have given months of careful study to this question, and, after this study, their decision is in favor of the Edison System.

During the year 1909 The New York Edison Company made 42,475 separate contracts for installations aggregating the equivalent of 3,292,818 incandescent lamps, having an average consumption of 50 watts each.

Forty plants were abandoned during the year, and 96¾ per cent of all the new buildings erected on Manhattan Island contracted for Edison Service.

At the end of the year 104,449 separate installations were served, having an aggregate of 7,422,639 lamp equivalents of 50 watts each. The installations aggregate 224,391 horse-power in electric motors.

* * *

The remarkable efficiency of electric delivery wagons was illustrated recently in a test made during the month of January with deep snow on the ground. The car in question, having capacity for 1,000 pounds, made a trip through the suburbs of thirty-six miles for a test route of one hundred and fifty deliveries.

On some parts of the route the snow was so deep that no less than three times the passage of the wagon was actually blocked. The thoroughfares, deep in drift snow, would have been impassable to ordinary horse-drawn vehicles.

* * *

Notwithstanding these adverse conditions the entire trip consumed but sixteen kilowatt hours, an average of .444 of a kilowatt-hour for each mile of actual travel. A stable equipment of two two-horse wagons and from six to eight horses would be required to provide equal delivery service.

❧

One of the great sights of the closing night of the old year was the many-colored illumination of the "Great White Way"—some call it the Great Edison Way. What it meant to the spirit of the night can be realized by imagining Broadway on that occasion without this illumination. It lighted out the old and in the new for the crowds that densely packed every public place, crowded every square foot of sidewalk, and overflowed into the roadway.

It was an orderly, good-looking, good-natured crowd, better and happier because of the lights. Where plenty of light is there will be order, decency, happiness and health; where light does not abound crime, unhappiness, filth and disease. It is a great insurer of good.

❧

The greatest advertisers, and the most successful, use electric light and the electric sign to communicate with the purchasing public. They are not expensive—in fact, they are the least expensive of all possible ways for effective advertising.

Electric signs benefit not only the immediate user, but the neighborhood. They afford a remarkable degree of general illumination, attracting crowds and giving publicity, which result in higher rentals and greatly enhanced real estate values.

❧

The subject of mechanical refrigeration for markets, apartment buildings and private residences is one that should be carefully considered. Individual outfits driven by electric motors are now manufactured from the size suitable for a small family up to that required by a large store.

The inconvenience of handling ice and the dirt and slop attendant to its use are eliminated. It is only necessary to turn a convenient switch to start the apparatus, after which a constant temperature is maintained.

❧

The electric elevator is daily coming into more general use for passenger and freight service. It is in every way superior to the old mechanical drive, and its cost and operating expenses are less than the corresponding cost for hydraulic installations, this being especially true in small plants.

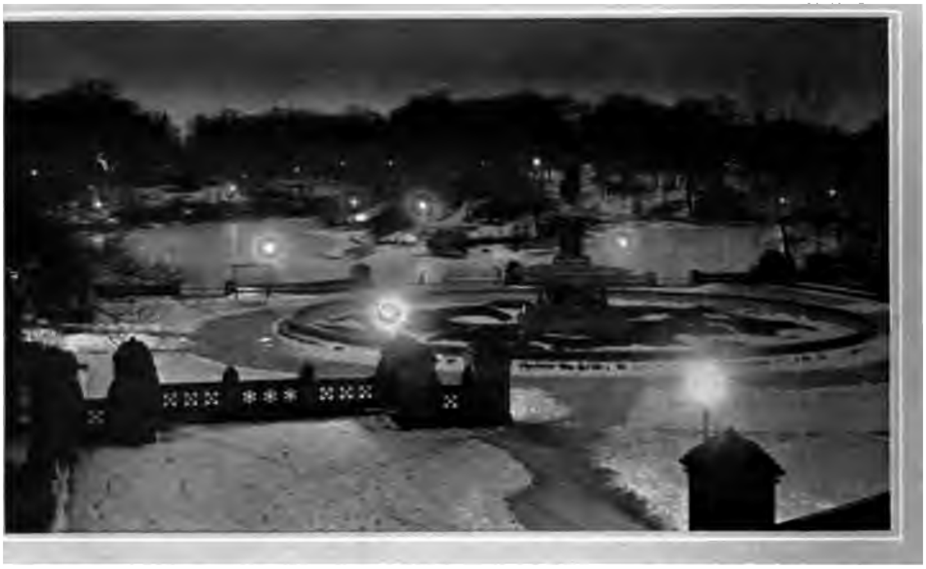
The electric machine is more efficient, takes less space, is less complicated, and requires less attendance than the hydraulic type.

The electric elevator is easily equipped with safety devices, such as automatic stops, which operate when all of the doors are not closed, or when the car passes a given point.

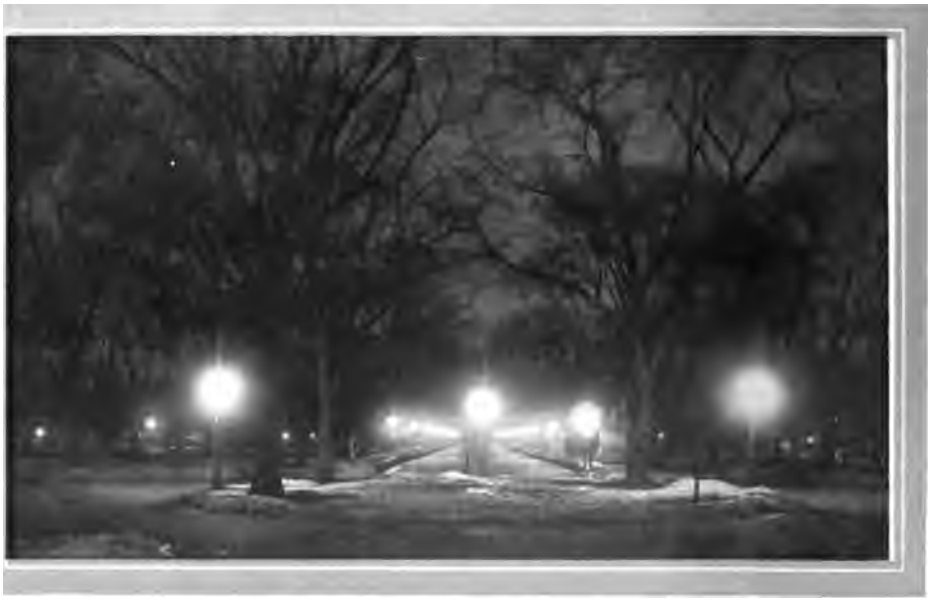
❧

The push-button elevator requires no regular operator. The passenger operates the car by pushing a button corresponding to the floor desired; the car goes to that floor and stops of its own accord, and when the door is closed it proceeds to answer the next push-button call, stopping automatically at the floor from which the call originated.

The Lighting of Central Park



Fountain and Lake in Central Park, Showing the New Tungsten Lighting



Lighting Along the Mall, Looking North, in Central Park

Electric Sign Advertising

In New York City and within a radius of fifty miles, six million people, or one-thirteenth of the population of the United States, reside. Every day there are 3,466 trains, carrying 618,000 passengers (comprising 400,000 transient visitors), coming in and going out of New York.

Another View of the Mall, Showing the Lighting

The great concentration found in New York offers big opportunities for outdoor advertising by electric signs, as it tells what you want people to know to the greatest number for the least expenditure.

It is estimated that more than 300,000 people pass along Broadway at one of its busiest centers every day and electric signs attract them all—the pedestrian, the street car passenger and the man in his own carriage or automobile.

The circulation of electric sign advertising equals the population of the city—everybody sees it. It works every day in the year.

Fifteen per cent of the public are willing and voluntary readers of advertising. Eighty-five per cent are absolutely indifferent, and they are the class that electric signs unconsciously impress.

An electric sign placed in a conspicuous position on a public thoroughfare burns a lasting impression into the minds of the public.

Electric motor drive reduces overhead shafting and belting with the consequent frictional losses. Individual motor drive entirely eliminates overhead shafting and belting, and economical operation, by reason of increased production, is insured.

Electrical Equipment of the American Photo Color Company

Embossing Presses in the American Photo Color Company's Plant. These presses are motor-driven. Electrical engineer, Mr Mitchell Frankel, 1161 Broadway

PRACTICALLY the first introduction of souvenir post cards was made in this country in 1903 by Mr John Bergman of the American Photo Color Company. He brought a small consignment from Germany and sold them to dealers in and around New York. The card business grew rapidly, and Mr Bergman, with his brother, incorporated the American Photo Color Company and commenced business at 118 Chambers Street. In 1906 the business had increased to such an extent that it was necessary to enlarge the plant, and the company moved into larger quarters at 9, 11 and 13 Walker Street, occupying six floors and employing five hundred people.

Again the business expanded to such proportions that more room was required, and the company has now moved into its new plant at 520, 522 and 524 West Forty-eighth Street, occupying the entire building. Here post cards are manufactured by every known process.

The plant is operated entirely by electric motors on Edison Service. In the basement there is a 10-horse-power motor operating an elevator; a 10-horse-power motor driving a pump which delivers ninety gallons of water per minute; a 20-horse-power motor driving an air compressor. On the third floor there is a 3-horse-power motor driving a bronzing machine; five 4-horse-power motors operating five Hoe lithographing presses; a 5-horse-power motor driving a stone-planer. The machinery on the fourth floor is driven by a 15-horse-power motor. On the fifth floor is a 7½-horse-power motor operating several cutting machines; a 15-horse-power motor driving a group of embossing machines; a 5-horse-power motor operating a lacquer machine. The sixth floor equipment consists of two 5-horse-power motors operating groups of cutting and embossing machines; two 1-horse-power motors and two ½-horse-power motors driving small Gordon and Universal presses, and a 15-horse-power motor operatting the ventilating system.

The lighting installation approximates 500 16-candle-power incandescent lamps. The entire electrical installation was designed and installed under the supervision of Mr Mitchell Frankel, electrical engineer of 1161 Broadway.

Use Edison Service, it's safe, clean and economical.

The House Electric in 1910

FOR years the dream of many housekeepers has been a home in which practically all domestic work could be done by electricity. That dream promises to be realized during the present year.

Electricity is now being applied to half a hundred uses in homes and new applications are rapidly being added to the list. New York leads all cities in this respect, and there are a large number of families who now do all their cooking by electricity, and use electric power for sewing, washing, ironing, sweeping and for toilet purposes.

The electrical kitchen of 1910 will

Electrically Operated Stone Planer, American Photo Color Company

Lithographing Press, American Photo Color Company

consist of a kitchenette or electric range so connected that any portion can be used independently, with several degrees of heat.

Besides its use in washing, ironing and cooking, for sweeping and for running the sewing machine and the pianola, electricity will be applied to many other devices in the house electrical this year.

The electric razor is one of the recent innovations. It is similar in form to the familiar safety razor, with the exception that the blade is vibrated by a flexible shaft connected to a small electric motor. It is only necessary to draw the razor over the face steadily to receive a clean shave. It can be connected to the ordinary lamp socket.

The electric shaving mug is more familiar. It heats the water in the mug, and you can even make a cup of coffee or chocolate in the shaving mug at a pinch.

Electric toilet articles are already numerous, and the house electrical of 1910 is equipped with them. Electric vibrators are well known, and almost every barber shop has one. An electric hair dryer is now made for the ladies that emits a blast of hot or cold air for drying the hair. Electric heaters have, of course, been in use for a long time, and naturally the house electrical of 1910 is heated as well as ventilated and illuminated by electricity.

The head of a family residing in an electrical house can turn a switch that starts the electric heater before he gets out of bed. Before he is out of his bath the water is hot in his electric shaving mug, and a turn of the switch sets his electric razor humming.

His breakfast is prepared on an electric range, with the bread toasted by an electric toaster on the table. When he has finished he takes his electric automobile or an electric train to his office.

After he has departed and breakfast is out of the way, the house is cleaned by a portable electrical vacuum cleaner, the linen is washed and ironed and all the other work is completed with the aid of electricity. When the head of the family returns at seven o'clock his dinner has been cooked by electricity, and is ready to serve.

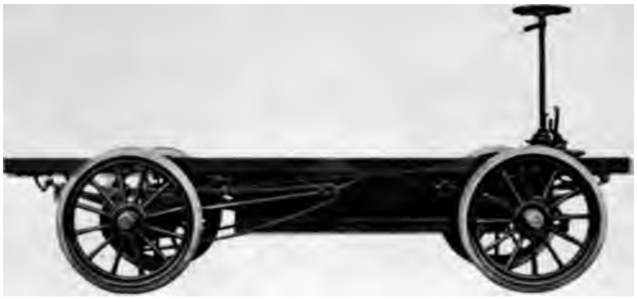
Well lighted show windows attract pedestrians and are productive of business.

Lansden Electric Wagons

THERE is a rapidly growing appreciation among mercantile, manufacturing and other business concerns of the many advantages of electric delivery wagons and trucks in the transfer and distribution of merchandise and manufactured articles of all kinds in city and suburban territory. The reliability, simplicity, cleanliness, speed and capacity of the electric vehicle especially commend it, and the fact that there is absolutely no danger of explosion or fire in connection with its use makes it a perfectly safe means of transportation where loading is done inside the store or factory. In New York and some other cities it is the only type of self-propelled wagon that will be admitted to the steamship piers. The insurance rate is lower on electric wagons and the garage in which they are stored than on horse wagons and stables or gasoline cars and their garages.

Objections that have until recently existed against electric wagons in general have been overcome in the electric wagons built by the Lansden Company, of Newark, N J. Battery trouble is eliminated by the use of the Edison perfected storage battery, which is exceptionally light for its capacity, has unusually long "life," maintains its full efficiency indefinitely and can be taken

One of the Pressrooms, American Photo Color Company

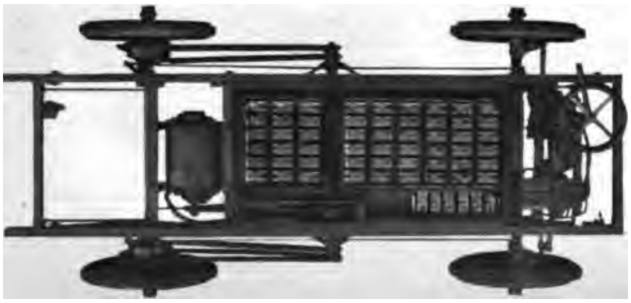


Side View of Lansden Commercial Wagon Chassis

care of and kept in perfect condition by anyone who is intelligent enough to read and follow simple instructions. All the attention it needs, aside from proper charging, is filling of the cells twice a week with pure water and occasional cleaning off of the outside of the cells. No acid is used and the cells do not require testing with a hydrometer and "equalizing."

The light weight of the battery enables the wagon itself to be built light without sacrificing anything in strength. The builders claim that it is the lightest electric wagon in proportion to its carrying capacity and mileage rating in the market, and give support to the claim by publishing the weights of all their wagons and trucks in their catalogue. Every pound of weight by which the wagon and the battery are reduced increases the load-carrying capacity by an equivalent amount or makes it possible for the wagon to carry its load farther. This accounts for the extraordinary mileage given per charge by Lansden wagons in the regular daily service of some of the largest department stores, dry goods houses and other retail establishments and express companies in New York and other cities. One of the one-ton delivery wagons has for several months been covering a daily route of about sixty-eight miles in Brooklyn Borough, and making 150 or more stops for parcel deliveries on each run, all on a single over-night charge of the battery. Some of the longest and hardest delivery routes out of New York have been covered on a single charge by Lansden wagons of similar type and capacity. These include round trips to Tottenville, at the south end of Staten Island; Woodlawn, at the northerly line of Greater New York, and Morristown, N J. The run to Morristown and back is seventy-two miles, up hill and down, over ordinary macadam roads.

In the design and construction of the Lansden wagon the first result sought is absolute dependability, as it is recognized that it is more important that every day's deliveries should be made at a minimum of expense. Complication and the use of delicate parts is strictly avoided, as a result of which



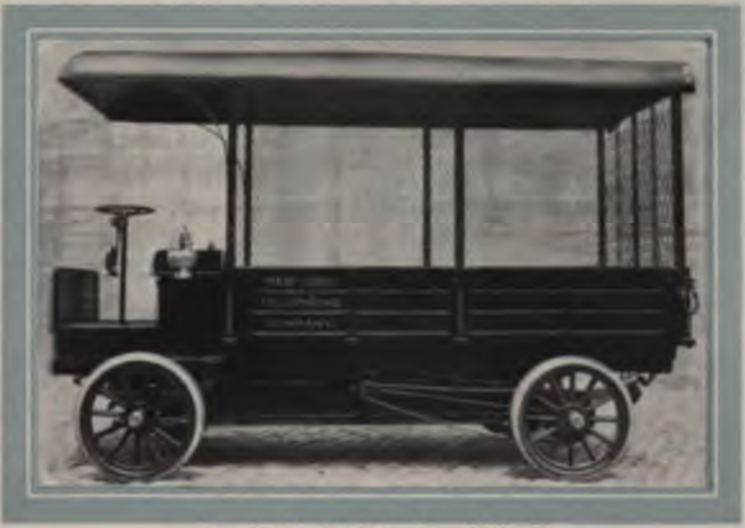
Bird's-eye View of Lansden Chassis, Showing Edison Storage Batteries it is the practice of users of the wagons to break in their best horse drivers to run the electrics in the course of two or three days' instruction. The same wages are paid them as previously.

The construction embraces the use of a wood frame or sills that carry the weight of the body and load and absorb and deaden the vibrations due to roughness of the road; a single motor, especially designed for motor wagon work, which is carried adjustably on the cross members of the main frame; single reduction chain drive from the armature shaft to a differential on a countershaft, and final drive by a pair of side chains from the ends of the countershaft to the rear road wheels. The battery is underslung in a sheet metal box that excludes dirt and water. A continuous torque controller is used that does not interrupt the circuit when changing from one speed to another, and the controller handle is placed just below the hand steering wheel near the top of the steering post. The driver sits on the left side, where he has a clear view of vehicles passing on that side and where the helper will not interfere with him in getting out of and into his seat on the curb side of the wagon.

A new and exclusive feature is the spring countershaft that takes up the jerk of the motor in starting and speed changing, relieving the side chains and rear wheel tires of all sudden and excessive stresses, thereby prolonging their life. Plain bearings are used in the wheels, so that there is no danger of road stoppages due to broken balls or rollers. A loose bronze sleeve between the spindle and hub takes nearly all of the wear and, by means of spiral grooves, keeps the bearing constantly lubricated.

The illustrations show plan and side views of a standard chassis. Every part of the mechanism and control is on the chassis proper and nothing whatever on the body. Furthermore, all parts are quickly and easily accessible.

These wagons are made in twelve different load capacities, from 350 pounds to 6,000 pounds. Each size, up to and including the 2,000-pound wagon, is furnished in three different mileage ratings according to size of



Lansden Standard 3,000 Pound Wagon

battery fitted. The 350-pound wagon is rated at 55, 65 and 75 miles per charge at a speed of 14 miles an hour, and the 2,000-pound wagon at 25, 35 and 45 miles per charge at 10 miles an hour. The trucks from 2,500 pounds capacity to 6,000 pounds have two mileage ratings, ranging from 25 to 40 miles per charge at speeds of 7, 8 and 9 miles. All of these ratings are based upon guaranteed performance with full load in average city and suburban service.

Thorley's Floral Store, Corner Fifth Avenue and Forty-sixth Street. This is an excellent example of Tungsten lighting but the picture does not do justice to this beautiful window

Progress of the Electric Vehicle

A RECENT edition of the *Electrical World* contains an interesting article on the subject of electric automobiles and their progress during the year 1909. It says in part:

"In taking account of the record of the year 1909 in electrical advancement, the electric vehicle and its relation to the Central Station must not be overlooked. The electrically propelled automobile for pleasure service or commercial purposes has been in existence for nearly twenty years. During that time it has developed from a mere curiosity to the foundation of a business which supports numerous important factories, and which turned out vehicles to the number of perhaps 4,950 in the year 1909, these cars and wagons of one year's production being valued at about $10,500,000.

"A glance at these figures shows

Architect, Mr Don Barber Builders, Messrs Marc Eidlitz & Son

The Handsome Facade of the Lotos Club. The installation consists of 2,500 incandescent lamps and 150 horse-power in motors

that, despite some early imperfections of its own, and indifference from quarters where self-interest would apparently insure friendly co-operation, the electric vehicle has 'made good.' It is here to stay and is to be reckoned with by all interested in the automobile or electrical business."

Ventilation

TO procure fresh air and keep it in circulation is a problem of particular interest to those who are compelled to be either temporarily or permanently indoors. In summer, especially, and in inland and low sections of the country, arrangements for good ventilation become a matter of business necessity to render a store, shop or factory even habitable during

Architects, Messrs Sommerfeld & Steckler

New Building at Thirty-seven to Forty-five West Twentieth Street. Owned by Messrs Brody, Adler & Koch, of 132 Nassau Street. Edison Service has been adopted for over 3,000 lights and 200 horse-power in motors for operating elevators and pumps

the hot months, and in the winter it is an equally important matter where a large number of people congregate, as in audience rooms, banquet halls and clubs.

For such ventilation it is not only necessary to draw in pure air, but to remove the vitiated air, and to continue this process indefinitely. For many industrial purposes, however, the desired object is to remove moist air from rooms in which lumber, cloth, paper, tobacco or other articles of merchandise are being dried, to exhaust those noxious gases or fumes which attend certain processes of manufacture, or to cause a circulation of air over heated or cooled pipe coils for maintaining an equable temperature in assembly rooms or apartments. Though this was not formerly an easy matter to accomplish, apparatus is now obtainable which will readily produce the required results.

An electrically driven ventilating fan of the propeller type is usually fixed in a circular aperture in the wall and can be arranged as desired—either to draw in the fresh air or expel bad. An exhaust fan should be placed so that it discharges the air in the same direction as the prevailing wind, in order to avoid having to contend with wind pressure. The number and location of air inlets and probable effects of prevailing air currents should also be considered carefully in determining the place for the fan. Under ideal conditions the room to be ventilated should have only one inlet for air, which should be at the opposite end of the room from the exhaust fan. The size of the fan to be installed, of course, depends largely upon local conditions, but roughly speaking, the eighteen-inch size will be found sufficient to provide fresh air for twenty-five or thirty persons. This allows for the provision of 2,000 cubic feet of air per hour for each occupant of the room.

With Edison Service a few machines may be operated, consuming energy only when in use, thereby eliminating operating expenses of the boiler and engine room.

Another Plant Abandoned for Edison Service

MR Louis Stern has recently purchased the Borgfeldt Building, occupying the block front on Wooster Street from Third to Fourth Streets. The 4,000 incandescent lamps and 200 horse-power, for which a private plant was formerly operated, is to be supplied from the system of The New York Edison Co.

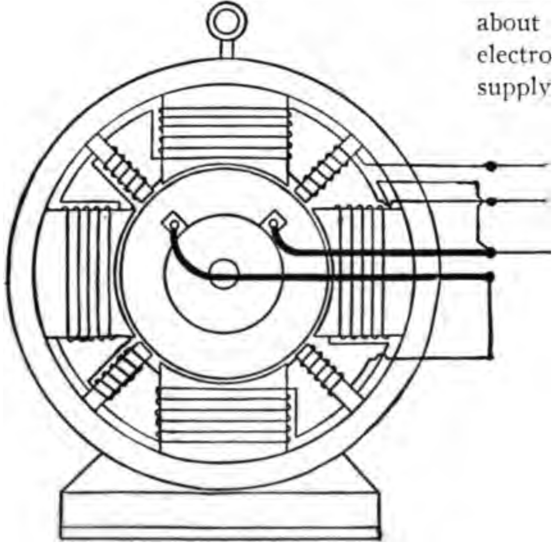
Architect, Mr Geo F Pelham

New Apartment Building at 322-326 West Ninety-ninth Street, owned by the West Side Construction Company. Edison Service has been adopted for more than 3,000 lights. The elevators and pumps are electrically operated

The Characteristics of Direct-Current Electric Motors

THERE are four general types of direct-current motors—series, shunt, compound-wound, and variable-speed. Each of these types is subject to modifications to adapt it to special applications.

In the series-wound motors the field coils are connected in series with the armature winding, so that the current is the same in both armature and field windings. The jumper shown in the diagram of connections is removed when the motor is to be operated reversing, and either the armature or the field connections leading to the reversing switch must be reversed. To change the direction of rotation of any type of direct-current motor, either the field or the armature current must alone be reversed.


Connections of an Interpole Motor

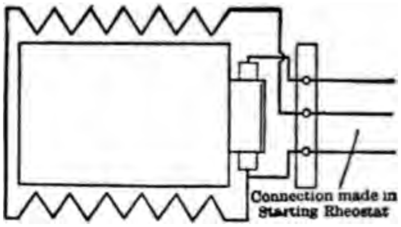
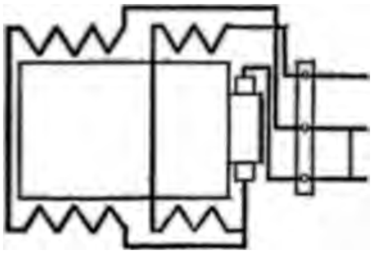


Diagram Showing Connections of Field and Armature Windings in a Shunt-wound Motor

When a series motor is running light, it takes just enough current to make up for the losses within itself. As the armature increases in speed, the counter electromotive force increases, and the current rapidly decreases. Since the field winding is in series with the armature winding, the flux is also decreased, and the armature is compelled to still further increase in speed in order to generate its counter electromotive force, which at no-load about equals the impressed or line electromotive force. The current to supply the losses in a well designed machine is very small. The no-load current is consequently small and the speed excessively high, in many cases high enough to injure the motor. For this reason the load should not be thrown entirely off without some means of retarding the speed.

When the motor is loaded the counter electromotive force decreases slightly, allowing the current to in-



Connections of a Compound-wound Motor

crease, thus increasing the field flux and producing a correspondingly stronger torque. As the field flux increases with the load, the speed decreases, giving a different speed for each load. The speed is varied by introducing resistance in circuit with the motor.

The field magnets are sometimes wound with enough turns so that the magnetic circuit becomes fully saturated at a small percentage of the full load current, producing a field that remains fairly constant over a considerable range of load, and thus reduces the variations of speed with the variations of load.

The characteristics of a series-wound motor may be summarized as follows: its speed will vary through a wide range with changes of loads: it will keep the power from changing greatly; it is notably sparkless; it has a very strong starting torque, and it will race if allowed to run free. The series-wound motor is especially valuable for electric cranes and hoists, turn-tables, etc., where frequent reversals are necessary, and where the speed of the motor is constantly under the control of the operator. It is also satisfactory for driving a definitely known load properly proportioned to the size of the motor, and directly connected to it, such as, for example, a fan under free circulation.

For steady, continuous service the shunt-wound motor is used more than any other type of direct-current machine because of its valuable speed-regulating qualities, which adapt it to the operation of machinery of all kinds which run at a constant speed. In a shunt-wound motor the field winding consists of many turns of fine wire and is connected directly across the mains when the motor is running.

One side of the shunt winding is connected directly to one side of the armature circuit at the motor and the other side to the line through the main switch. When the main switch is closed the field is excited, and then by cutting out the resistance of the starting rheostat gradually the current in the armature increases. Owing to the high resistance of the field winding of a shunt-wound motor, if the field were not closed before that of the armature it would practically be short circuited by the armature winding, and would receive little or no current, causing the motor to race badly, and spark at the commutator.

The field coils will supply the same magnetomotive force when there is no demagnetizing action of the armature. When the motor is running free the only load which the armature current has to supply is the frictional and other losses in the armature.

The speed of a shunt-wound motor

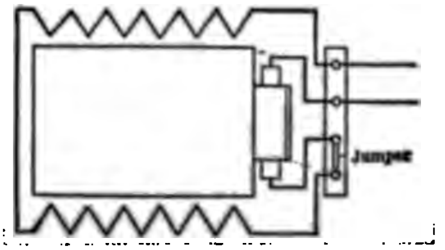


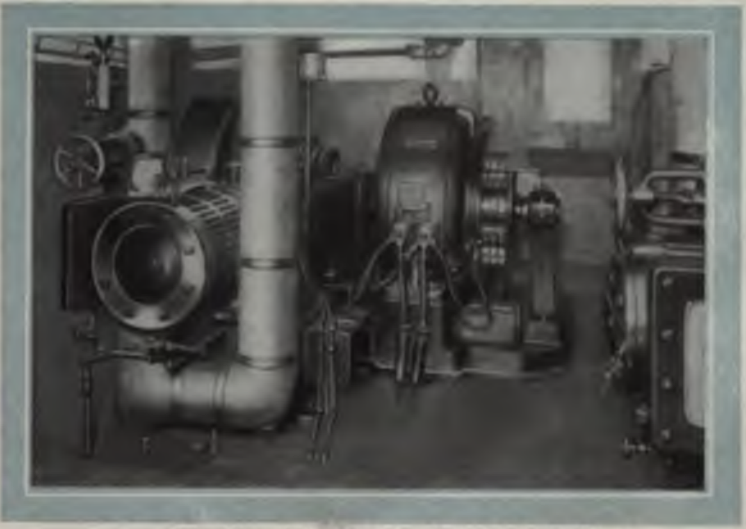
Diagram of Connection of a Series-wound Motor may be regulated within certain limits, depending on the design. The method of regulation in common use is to introduce resistance in the field circuit and increase the speed.

The shunt-wound motor should be used where uniform speed is required under changing load, and is commonly chosen for driving line shafting or where more than one machine is to be driven from one motor. Its operation may be compared to that of a well-governed steam engine.

A compound-wound motor has both a series and a shunt winding, and combines to a large extent the advantages of both types of motors. It is well adapted to the individual

The Taber Building, No 82 Wall Street. A large private plant has recently been abandoned and Edison Service substituted. The installation consists of about 4,000 incandescent lamps and 300 horse-power in motors.

A Corner of the Abandoned Engine Room in the Taber Building

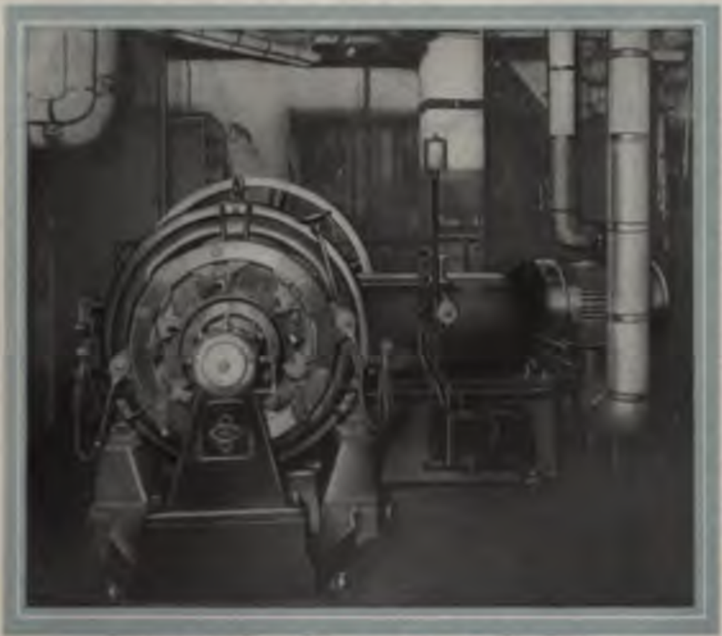


One of the Discarded Generating Units, Taber Building

driving of such machines as printing presses, machine tools having a reciprocal motion, such as planers, shapers, slotters, etc.; self-starting pumps, fans of all kinds, and machinery requiring a fairly heavy starting torque, particularly where the machinery is frequently started and stopped or reversed.

A type of direct-current motor that is in quite general use is the interpole motor. It is provided with an extra set of poles attached to the frame between the main poles. The winding of these poles is connected in series with the armature, their function being to maintain a field for sparkless commutation, irrespective of the distortion of the main field flux caused by armature reaction when the field flux is decreased for speed regulation.

These motors are built to give a high range of speeds on single voltage circuit by means of weakening the field flux. The interpole type of motor is designed especially for the operation of such machines as lathes, boring mills, milling machines, drills, and machines of a similar character.

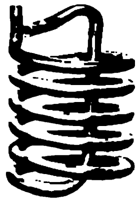


Another Abandoned Generating Unit, Taber Building

Therol Electric Oven, Side Elevation and Sectional View

Therol Water Heater

Heating Element



Water Coil

Metal Block with Magnesia Insulation

Therol System of Electric Heating

MESSRS SPAGNOLETTE (Ltd) of London, with United States offices at 30 Church Street, are introducing into this country some heating and cooking devices that are worthy of consideration. To the several devices the name of "Therol" has been given.

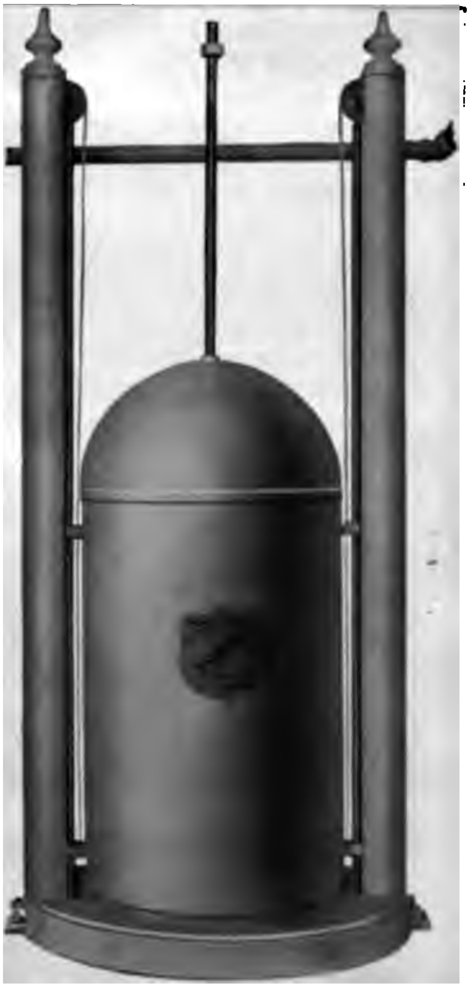
The water heater shown in the illustrations, in its simplest form, consists of a block of iron cast around a coil of pipe. This block is entirely covered with a layer of magnesia lagging about two inches thick.

The top of the block is hollowed out into a cylindrical form, and in this hollow is placed the heating element, consisting of four coils of iron wire insulated with mica. The block of iron is then continuously heated by electricity, and water is, when required, passed through the pipe and heated.

Cooking Utensil for Therol Electric Cooker

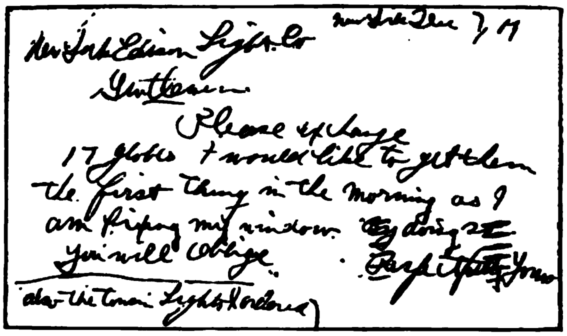
Tank for Therol Water Heater

Further economy is effected by introducing between the lagging and the outer cover a small reservoir, which is in turn protected by lagging from the outermost surface of the heater, and which serves for raising slightly the temperature of the incoming water



Therol Electric Cooker

before it is introduced into the heater proper.



New York Dec 7 / 17

New York Edison Light Co

Gentlemen

Please exchange
17 globes I would like to get them
the first thing in the morning as I
am fixing my window. By doing so
You will oblige. Respectfully Yours

also the Xmas Light Holders

Facsimile of a Postal Card Received by The New York Edison Company, Containing no Signature nor Address. This is only one of many such cards received where there is no chance of identifying the sender

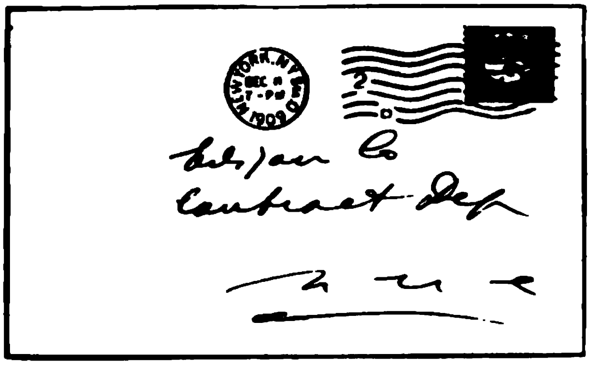
Since the coil of pipe through which the water passes must have sufficient surface for heating the water when the block is comparatively cool, it follows that when the block is very hot the water will be converted into steam. It is necessary therefore to mix the issuing steam with water, and thus reduce it to a suitable temperature. A special faucet is used for this purpose. Pipes are brought up from the main and from the hot water chamber to the faucet, and by placing the tap in the appropriate position, cold, tepid or hot water can be obtained.

The heater is simple in construction, entirely self-contained, and requires little alteration of any existing pipe work when installed. Hot water is always available, and by suitable adjustment of the tap it may be drawn off at any desired temperature. There are no noxious gases nor products of combustion and no flue nor chimney is required.

The "Therol" water heater is provided with an automatic device whereby a proportionate amount of the heater element is cut out when lights or cooking utensils are in use, thus keeping the maximum load at practically a fixed figure.

The size of the heater refers to the quantity of water it will raise through 60° Fahrenheit every twenty-four hours. Thus, a twenty-five gallon heater will raise this amount of water from 50° F to 110° F, while if only warm water is required a very much larger quantity may be obtained. In every case the amount of water available may be drawn off all at once, or in smaller quantities, at any time during the twenty-four hours.

Autoscope as Used in a Show Window



Letter Intended for Contract and Inspection Department of The New York Edison Company which was promptly delivered. This incident shows the excellent work on the part of the New York Post Office

A "Therol" electric oven is illustrated also, showing a sectional and side elevation. The internal construction is similar in principle to the water heater.

The electric cooker consists of an insulated enclosing hood which can be raised and lowered. An electric heater is mounted in the base of the standard on which an ordinary triple cooker rests.

The Autoscope

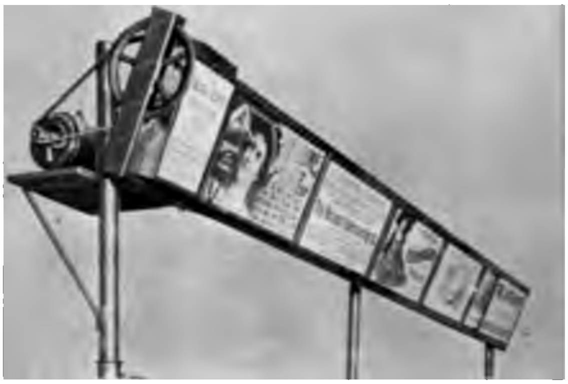
THE Autoscope advertising devices are used for a large number of purposes and are especially adapted for use in display windows and showrooms. As will be seen by the illustrations, each card is contained in a separate and distinct metal frame. The frames are attached by anti-friction rollers to an upper and lower guide, and are moved from end to end by an endless chain connected to a small electric motor. The frames travel continually in one direction across the face of the Autoscope, and return in the rear.

This device has a wide application and is not confined to advertising cards alone, as large sizes can be used for displaying dress goods and in fact any kind of merchandise.

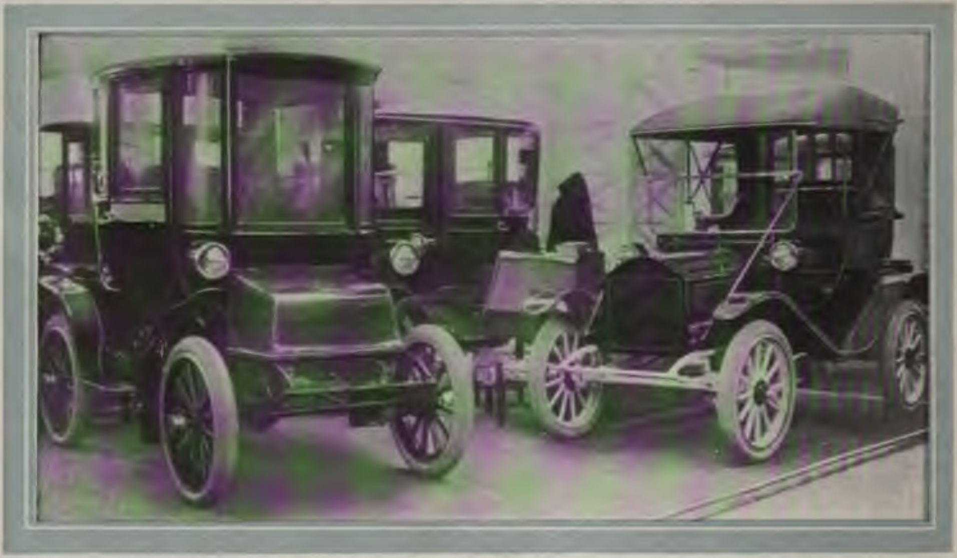
The National Car Advertising Company, Chicago, are the manufacturers. The National Underwriting Company, 350 Broadway, are the New York representatives.

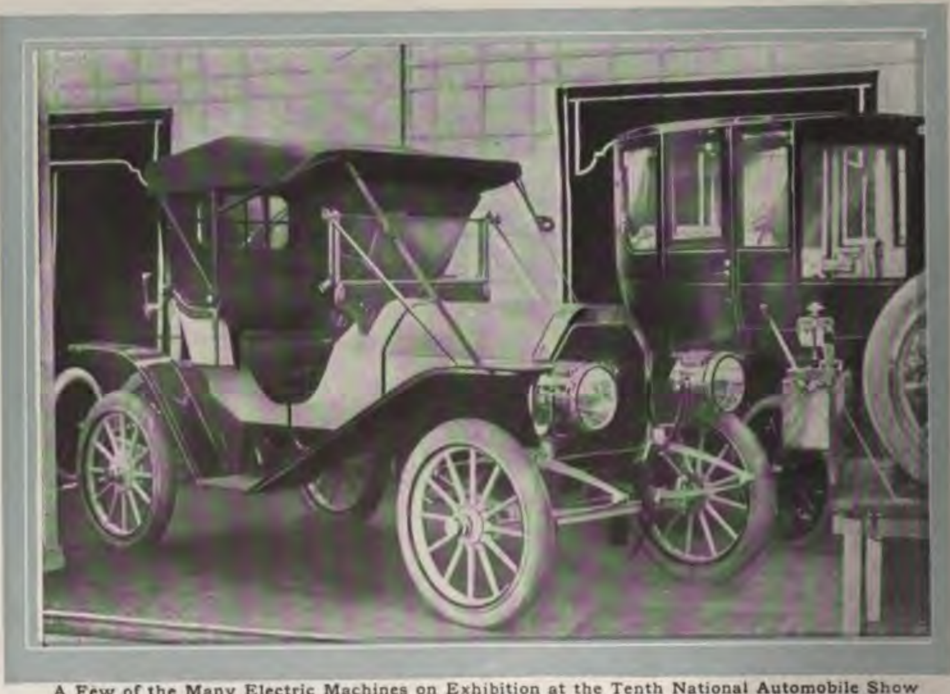
With electric drive, machines can be placed to facilitate the logical sequence of operations, thus eliminating the time necessary for transporting material by truck.

Fire hazards are reduced by the elimination of a private plant with its high-pressure steam boilers.



Section of Autoscope, Showing Small Driving Motor





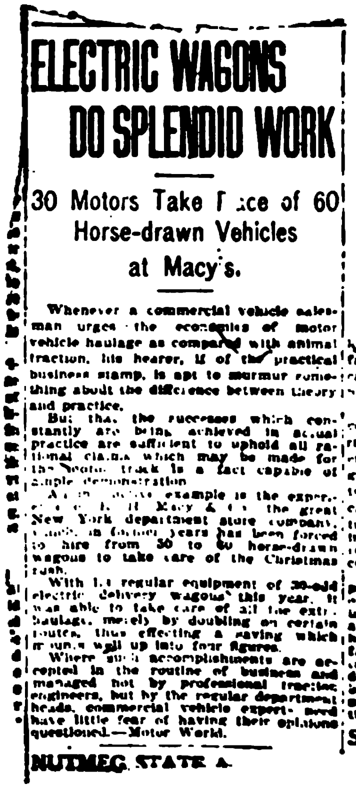
A Few of the Many Electric Machines on Exhibition at the Tenth National Automobile Show

Tenth National Automobile Show

THE Tenth National Automobile Show, given under the auspices of The Association of Licensed Automobile Manufacturers, was held in Madison Square Garden January 8th to 15th.

Nearly three hundred and fifty exhibitors took part in making it one of the most successful shows so far held. Everything, from the largest cars and trucks to the smallest accessory, was in evidence. The display of electric automobiles was worthy of especial notice owing to its large scope, and its completeness. All of the leading makes of electric vehicles, for commercial and pleasure purposes, were shown to a great crowd of interested spectators.

It is gratifying to note the rapid advancement made in the electric vehicle, and to know how extensively it is being adopted for reliable all-the-year service.



ELECTRIC WAGONS DO SPLENDID WORK

30 Motors Take Place of 60 Horse-drawn Vehicles at Macy's.

Whenever a commercial vehicle salesman urges the economics of motor vehicle haulage as compared with animal traction, his hearer, if of the practical business stamp, is apt to murmur something about the difference between theory and practice.

But that the successes which constantly are being achieved in actual practice are sufficient to uphold all rational claims which may be made for the motor truck is a fact capable of ample demonstration.

A [illegible] example is the experience of R. H. Macy & Co., the great New York department store company, which in former years has been forced to hire from 30 to 60 horse-drawn wagons to take care of the Christmas rush.

With its regular equipment of 30-odd electric delivery wagons this year, it was able to take care of all the extra haulage, merely by doubling on certain routes, thus effecting a saving which runs well up into four figures.

Where such accomplishments are accepted in the routine of business and managed not by professional traction engineers, but by the regular department heads, commercial vehicle experts need have little fear of having their opinions questioned.—Motor World.

NUTMEG STATE A

Fine Showing for Electric Commercial Vehicles

Some of the Commercial Vehicles That Were Exhibited in the Basement

Tungsten Fixtures

MESSRS SHAPIRO & ARONSON, 67 Centre Street, are introducing a new line of shock-absorbing fixtures for use with tungsten lamps. These fixtures are known as the Sheffield type and are equipped with the Shapiro & Aronson shock-absorber, which has been described in a previous issue of The Monthly. The designs are pleasing and the various improvements are worthy of note.

Shapiro & Aronson Tungsten Fixture

Progress of the Future

IN a recent number of the *Independent*, Mr Thomas A Edison makes a number of remarkable prophesies concerning the progress of the future.

"There is much ahead of us," he says. "We don't know what gravity is; neither do we know the nature of heat, light and electricity, though we handle them a little. We are only animals. We are coming out of the dog stage and getting a glimpse of our environment. We don't know; we just suspect a few things. It will take an enormous evolution of our brains to bring us anywhere. Our practice of shooting one another in war is proof that we are still animals. The make-up of our society is hideous.

"In two hundred years, by the cheapening of commodities, the ordinary laborer will live as well as the man does now with $200,000 annual income. Automatic machinery and scientific agriculture will bring about this result."

The following are some of the suggestions of future development made by Mr Edison:

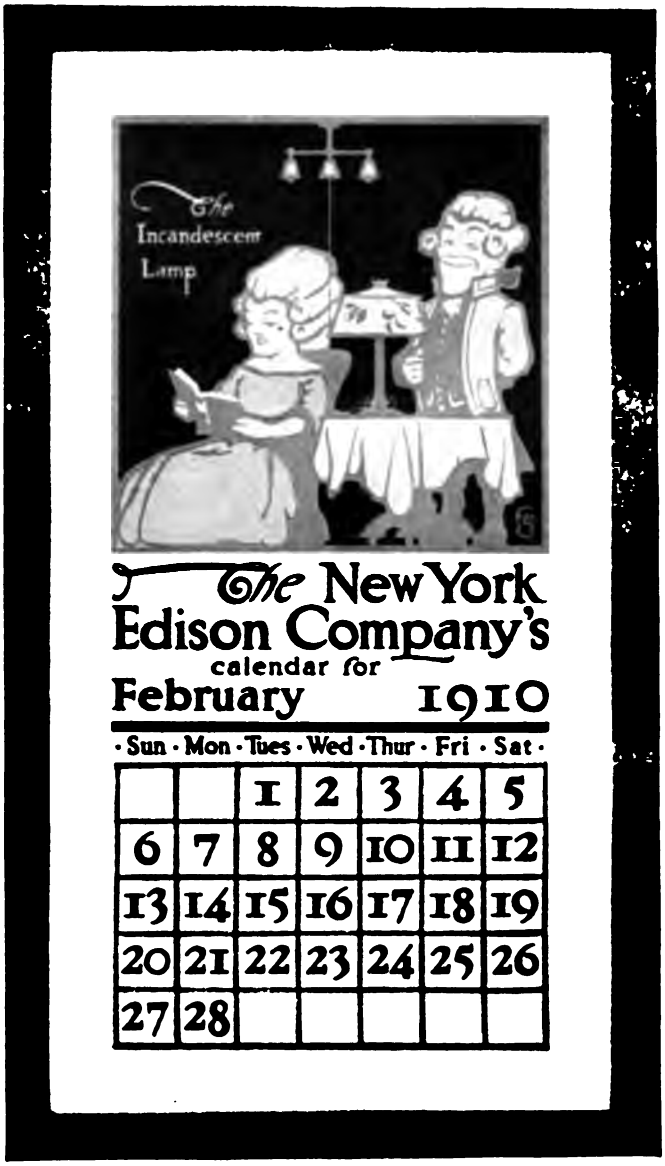
"The most important problem of the future is to get the full value out of fuel. A pound of coal has enough energy to carry itself around the world. We are only able to extract a small fraction of its heat and power.

"Radium is the cause of the earth's heat. The possibility of harnessing this force for our use is somewhat of a speculation. A radium clock has been made that will go several hundred years without winding.

"Tidal and wave power is, of course, immense. Consider the force that jogs up and down a steamship like the Mauretania. More practicable, however, are windmills, connected with storage batteries, to lay up the energy of the winds in electrical form. Sun engines are very promising machines.

"In steam volcanoes there is a source of power which might be obtained and sent out by electricity.

"The earth has quite a bulk, but it slips through the ether with so little friction that your thumb in the right place could move it."—*Exchange*.



The New York Edison Company's calendar for February 1910

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

The New York Edison Company's Calendar
Actual Size

Sent to any reader of THE MONTHLY upon request

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 330—C T Pinkham & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
Warren St 96—Independence Electric Co
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 52—F A Frey
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 25th St 130—N Y Electric Installation Co
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 28th St 11—Thos L Dillon
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—Tucker Elec Con Co
West 33d St 209—E J Electric Installation Co
West 34th St 45—Peet & Powers
West 38th St 72—A J Buschman Co
West 42d St 29-33—Germond & Turner
West 42d St 112-114—Oberg & Blumberg
West 42d St 316—J F Baker & Co
West 45th St 100—F A Bohling
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky

East of Broadway and Fifth Avenue

Beekman St 1—Electric Motor Insp & Repair Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—J Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 25th St 122—Isador Fajans
East 30th St 13—Geo H. Shuman
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 42d St 45—Cowden & De Young
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 125th St 57—Leo S Stern
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 120—Edward B Stott & Co
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82—Mfrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 59—Oswald Elec & Eng Co
Pearl St 119—Kelting Eng & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Elec Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

Bronx

Baker & Fox—313 East 141st St
Evans & Karstner—1 Madison Ave
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Ave
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
The Westchester Electrical Equipment Co—34 No Broadway
Thomson A—83 Waverly St
Underhill Harry—Bronxville N Y

The Edison Monthly

March 1910

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EDITORIAL

The Edison Monthly
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55 Duane Street, New York City

President
Anthony N Brady, 54 Wall Street
Vice-President and Treasurer
Nicholas F Brady, 55 Duane Street
Secretary
Lewis B Gawtry, 4 Irving Place

The object of a store window is to advertise not only by day but also by night the stock within.

The hours after dark are the most valuable of the whole twenty-four for advertising purposes, if a window is properly lighted.

People on the street are at leisure to note its contents and many persons will make it a point to cross a street to see what may be displayed in a particular bright window on the other side of the way.

Thousands are employed during the day whose chance for observing window displays comes only after their business hours. The streets are filled after closing time with people either going home or to some place of amusement.

It is an actual record of experience of merchants who have brilliantly lighted windows, that customers will come back one day inquiring for goods they have seen in the windows the night before.

◆

Mention has been made from time to time in these columns of the excellent work performed by electric vehicles during the heavy snowstorms this winter. Another instance of the electric's excellent performance is given by a local company who report as follows:

"During the snowstorm of January our electrics worked right up to their usual excellent standard. We have seventy electrics, and every working day of the month saw sixty-nine of them on the streets.

"It is interesting to note that on one of the snowy days, each thousand-pound wagon handled an average of ten deliveries in excess of what had been the number theretofore.

"Out of the entire equipment of sixty-nine vehicles on the streets, the average number that found it necessary to 'boost' on snowy days was five."

◆

Another company, maintaining a public electric vehicle garage, states that "during the three days when conditions were at their worst, the fifty odd trucks stored at our commercial vehicle garage were at work on the streets, and the record of wagons disabled and pulled in was as follows:

"On Monday, December 27th, none; on Tuesday, December 28th, one; on Wednesday, December 29th, one."

This record reflects credit alike on the operators of the vehicles and the garage. It means that the owners of these trucks and wagons are getting from them service of maximum efficiency, and they are getting it not only at times of exceptional difficulty, but all the time.

◆

Electrical appliances for contractors, although in extensive use, still have a large field unoccupied. In the demolition of old buildings, where structural steel has to be removed, the electric arc is very efficient for cutting through girders, columns and braces, the time required and expense involved being much less than when rivets are cut off or a saw is used.

The contractor's electric hoist needs little argument in its favor, and it is hard to see why steam should be used at all for the handling of heavy material. Electric hoists are portable, easily controlled, occupy little space and are absolutely clean.

Electric drills and hammers do not require external apparatus. All that is necessary is an attachment to the nearest electric feeder.

Electric lights for night construction work are in quite general use and can be placed in any position convenient to the operator.

Concrete mixers also can be better operated by electric motors than any other form of power, and there is no boiler to fire nor engine.

One feature alone, that is absence of smoke and dirt, should commend the use of electrically driven appliances, especially in residential sections and congested business thoroughfares.

◆

The layman scarcely appreciates the extent to which electricity is used in modern theatres. The beautiful lighting effects and illusions produced on the stage would not be possible were it not for electric lights.

The moving of scenery, the raising and lowering of curtains and drops, the movement of the stage—all depend upon electric motors for operation.

There is one feature, however, that seems to be lacking, and that is the illumination of the steps in the boxes, galleries and balconies. Many patrons of theatres are compelled to enter after the performance has begun, when the house is dark. Coming from the lighted streets without it is difficult to see the steps. A logical solution of this difficulty would be to place lamps of low candle-power in the riser of each step, the lamps in each aisle to be controlled by a switch convenient to the usher's reach as he enters.

The Gimbel Building

Messrs D H Burnham & Co, Architects Thompson-Starrett Co, Builders and General Contractors

The New Gimbel Building, Sixth Avenue, Thirty-second to Thirty-third Streets. **Edison Service** has been adopted for about sixty high-speed electric elevators for passengers and freight, several thousands of horse-power in motors, to be utilized for various purposes, and approximately 100,000 incandescent lamps for the illumination of the building's interior and the extensive show windows. About 10,000 horse-power in electrical service will be required

Advantages of Electric over Horse Vehicles

I. ECONOMY.

(a) OF MONEY.

1 Cheap upkeep.
2 Consumes nothing while idle.
3 Requires less stable room, permitting smaller housing.
4 Requires fewer men to care for, or groom.
5 Requires no attention on days of rest, or when idle.
6 Longer life.
7 In light small package delivery it does work of two or more wagons, reducing force of men to deliver, because it carries more load and goes twice faster than a horse.

(b) OF TIME.

1 Delivers in much quicker time than horse.
2 Return trip to distributing center at high speed.
3 Can work unlimited proportion of day.
4 Requires no days of rest.
5 Easily handled in congested traffic, at good speeds.
6 As garages are permitted where stables would not be, it permits more convenient and nearer stabling, nearer to distributing center.
7 Always ready.
8 Develops power despite weather and road conditions.
9 Can be worked overtime for holiday trade.

(c) OF SPACE.

1 In stable.
2 In street.
3 In loading space at warehouse, permitting more wagons to load at same time.

II. OTHER ADVANTAGES.

(a) INTENSIVE.

1 Fewer wagons, on account of higher speed, will do work.
2 Fewer men will take care of same delivery unit.
3 Consumes only when in actual service.

(b) EXTENSIVE.

1 Permits larger radius of delivery, meaning possible extension of free delivery limits, yet at low cost.
2 Is in itself a good advertisement.

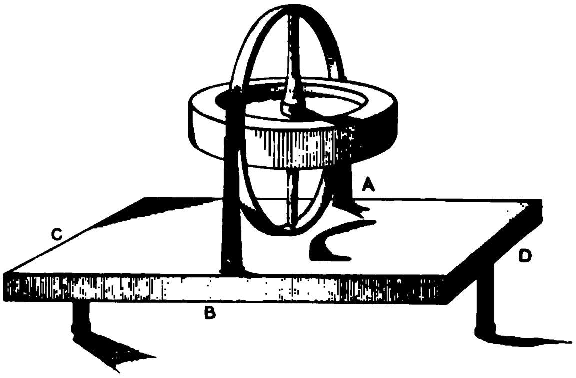
III. AND SOME GOOD REASONS.

1 Motor transportation would go far to solve traction and congestion of traffic problems for everybody.
2 Less damage to roads.
3 Dirt, dust and manure would disappear.
4 Permits the accurate and easy determination of costs.
5 It is a sign that the owner is progressive.
6 Unsoiled livery.

—*Literature of Edison Storage Battery Company.*

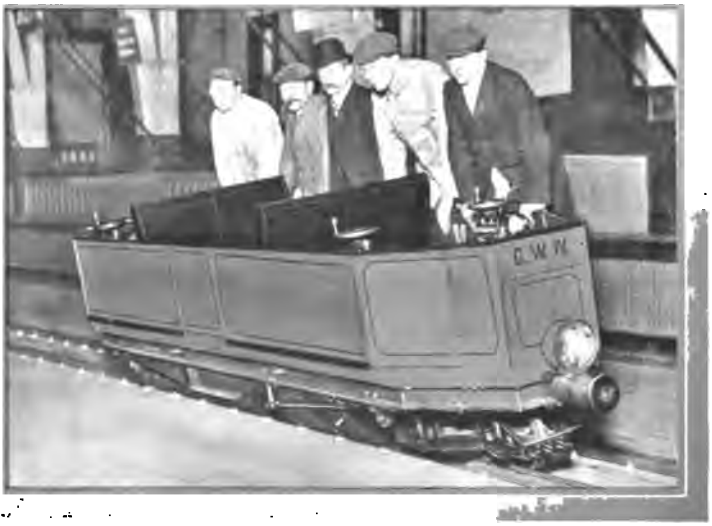
The Scherl Monorail Car

THE Scherl car, recently exhibited in New York, is kept in its upright or normal position on a single rail track by the action of a gyroscope. The car is always so balanced either when standing or when running that all tendency to incline, rock or pitch, due to inequality or to the moving of load is counteracted by the power of the gyroscope. The car is able to take any curve at any rate of speed without the slighest danger of derailment.



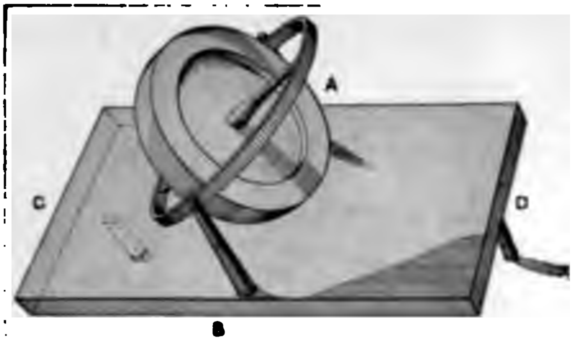
Reproduced from Scientific American
The Simple Gyroscope in Normal Position

The gyroscope balances the car when weights are displaced within the car itself. When loaded on one side, for instance, the car will not, as might be expected, lean toward that side, but the gyrostatical power will lift that side on which the load rests, thus maintaining the floor of the car entirely horizontal.



The Scherl Monorail Car, Showing the Effect of Loading One Side Only. The car tends to rise on the loaded side

The length of the car is eighteen feet, the width four feet, and it is mounted on single trucks. The net weight of the car is two and one-



Reproduced from Scientific American

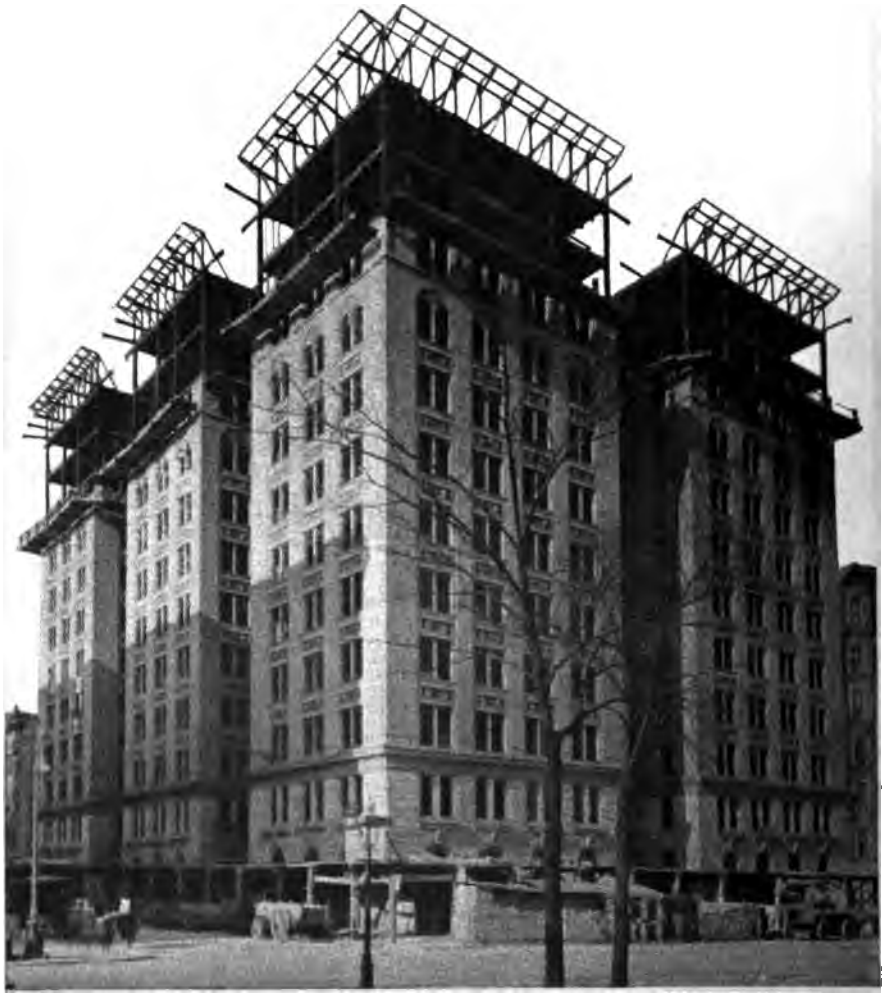
If the table (representing platform of car) be tilted transversely as shown, the gyroscopic flywheel will tilt fore or aft according to the direction of its rotation and there will be developed a strong resistance to the movement of the table. This fore-and-aft movement is called the precession.

half tons. The weight of the gyroscope is five and one-half per cent of the weight of the car. The gyroscope revolves in a vacuum at the rate of 8,000 revolutions per minute. In large cars of the size and weight of Pullman sleeping cars, the weight of the gyroscope must be from eight to nine per cent of the weight of the car. The gyroscope is run by an electric motor and should the current be interrupted, it would keep on revolving at a sufficient speed for nearly an hour to keep a loaded car entirely balanced and in a normal position. A gyroscopic train traveling at high speed could be brought to a full stop in case of a sudden interruption of current long before the cars would be in danger of losing their balance. The stabilization is therefore quite independent of the current. The cars are provided with supports that can be dropped either by the driver or automatically.

To more fully acquaint the readers with the principle of the gyroscope the following description is taken from the *Scientific American*:

"The simple gyroscope consists of a flywheel, so mounted upon a system of bearings that its axis may be tilted in any direction. The peculiar and most interesting behavior of the gyroscope is due to the fact that, when a flywheel so mounted is rotating in a given plane, it resists any effort to change its plane of rotation by tilting the axis on which it is turning. The tendency of the flywheel to maintain its plane of rotation, and its resistance to any force tending to tip it out of that plane, is proportional to its momentum; and since momentum increases directly as the weight, and

The Scherl Monorail Car in Normal Position

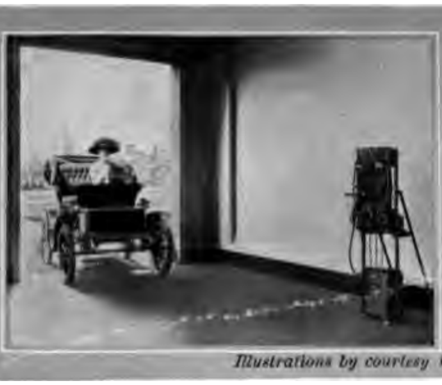


Architects, Messrs George and Edward Blum

Apartment Building Recently Erected at Broadway and 111th Street by the Rockfall Realty Company. Edison Service will be used for about 5,000 incandescent lamps and 200 horse-power in motors

Architect, Mr Albert J Bodker

New Apartment Building Erected by the Sturtevant Realty Company at the Corner of Central Park West and 93d Street. More than 5,000 incandescent lamps and 200 horse-power in motors will be supplied from Edison Service



Entering the Garage

Alighting

Illustrations by courtesy General Electric Company

as the square of the velocity, it is customary to use as small a weight and as high a velocity as possible. Hence the flywheels used in the Scherl car weigh only 125 pounds each; but they rotate at the enormous speed of 8,000 revolutions per minute. We are all familiar with the gyroscope of the toy shops or the lecture room—the first mounted rotatibly in one, the second in two, encompassing rings, with the axes of the rings at right angles to each other, and the flywheel axis in each case capable of universal angular motion. In the accompanying illustrations we show a gyroscope mounted as in the Scherl car.

"The flywheel is carried on a vertical axis, which is mounted in a gimbal ring. This ring swings on a horizontal axis, in bearings carried on two vertical posts, mounted on a board which, for the present purpose, we will consider to represent the deck of the car. If we change the plane of rotation of the flywheel by pressing down on one side and tilting it over toward *B*, two things will happen: The board will resist the downward pressure on that side and tend to rise, and the flywheel will be suddenly tilted over, as shown, in the direction *D*, in a plane at right angles to the plane in which we have depressed the board.

"This tilting of the axis is known as its 'precession.' If, now, we endeavor to increase the precession by pressing

Closing the Circuit Breaker

Starting the Rectifier

Inserting the Charging Plug

Closing the Main Switch

down upon the already tilted axis, the latter will resist very strongly, and there will be developed at the same time a large additional resistance to our depression of the side *B* of the board. It is in this 'advancement of the precession,' as Brennan calls it (though the precession, because of the vigorous resistance of the flywheel axis, is not actually advanced) that the secret of the successful gyroscopic car lies."

Electric Power in Construction Work

THE Thompson-Starrett Company, general contractors for the new Municipal Building, have signed a contract for 400 horse-power in motors, 200 incandescent lamps and 100 arc lamps.

Electricity will be used exclusively for light and power in the erection of the superstructure.

Charging Electrics

THE illustrations on these pages show the simplicity of charging electric vehicles with a General Electric Mercury Rectifier. The illustrations are reproduced by courtesy of The General Electric Company.

The space occupied by a private plant, including the storage for coal, is made available for business purposes when Edison Service is substituted.

Adjusting the Voltage

Out for Another Trip

Two Interesting Laundries

TWO new apartment buildings at 44 West Seventy-seventh Street and Seventh Avenue and Fifty-eighth Street respectively, have very interesting flatiron equipments.

The former building uses twenty-eight 5-ampere flatirons, and the latter twenty-five 5-ampere flatirons. Both buildings were designed by the same architect, and the installations are quite similar.

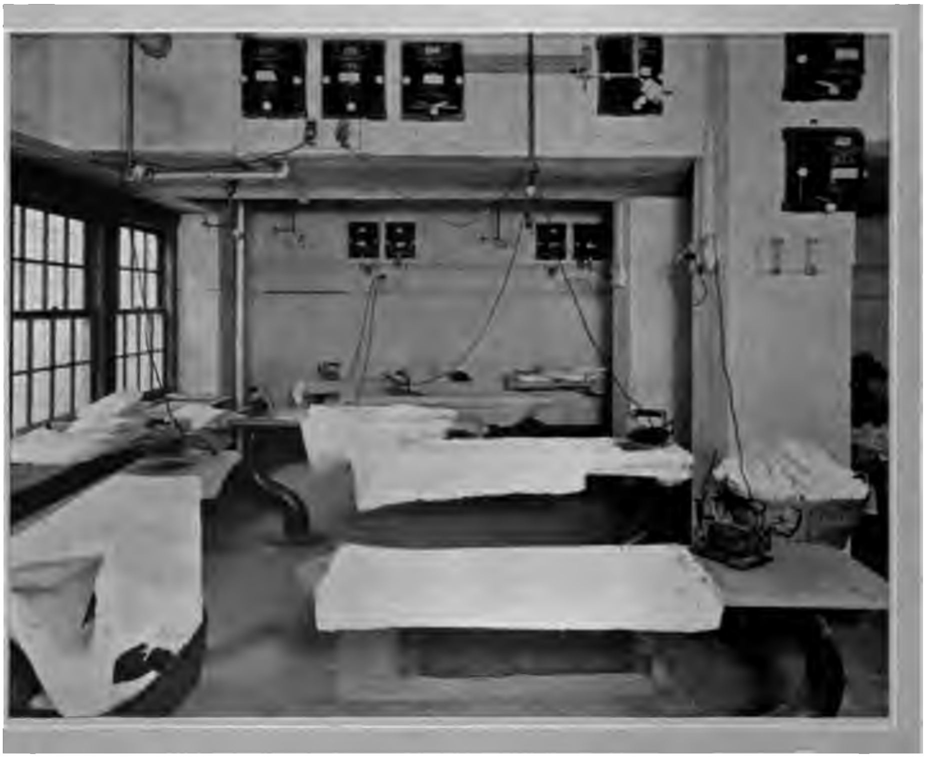
In the large ironing rooms in the basements of the buildings an electric iron, with separate outlet and meter, are provided for each tenant. Each outlet is provided with a lock and key, making it impossible for one tenant to make use of an outlet belonging to another. No other provision is made for ironing in these buildings.

Central Station Service in Africa

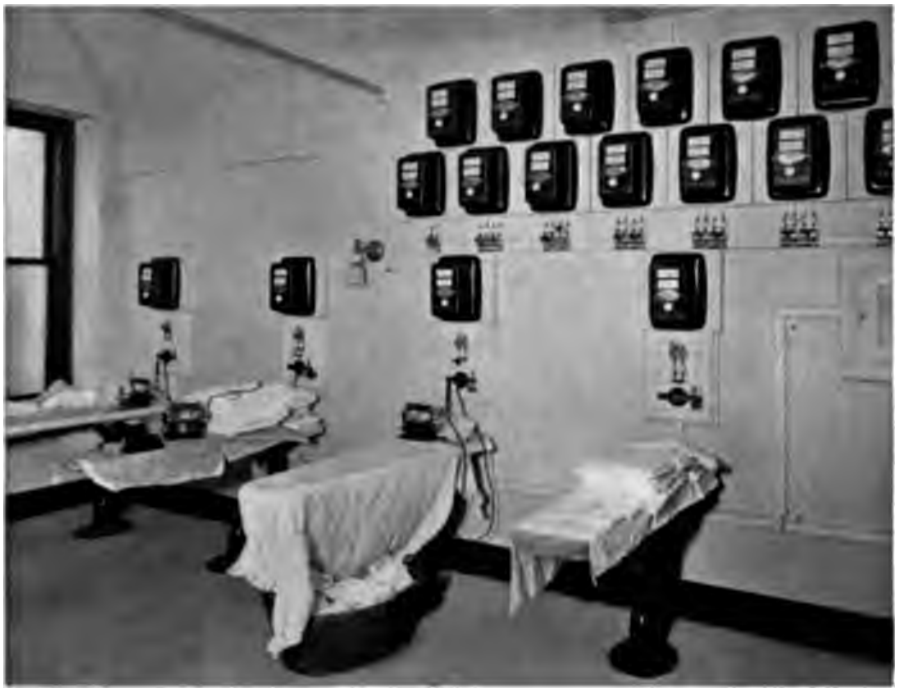
THAT Central Station service is being recognized as the ideal source of electric power the world over is evidenced by the recent closing down of a private plant in far-away Africa.

The new Goch Mining Company has discontinued its private plant and now takes service from the Victoria Falls Power Company.

With electric drive, machines can be placed to facilitate the logical sequence of operations, thus eliminating the time necessary for transporting material by trucks.



Electric Irons in the Laundry of the New Apartment Building, 44 West Seventy-seventh Street



Laundry in New Apartment Building, Fifty-eighth Street and Seventh Avenue. Each outlet in this laundry and the one shown on the preceding page is metered separately

The Electric Fan

WARM weather will soon be here and the problem of securing a circulation of cool air will be of particular interest, especially to those whose duties confine them indoors.

In stores, hotels, offices, residences, and in fact all places that are inhabited, electric desk, bracket and oscillating fans are in extensive use. They are portable and can be attached to any convenient lamp socket, and add greatly to individual comfort by creating a breeze in direct contact with the person.

The use of these "breeze makers," and particularly of the recently perfected oscillating fans which automatically move to and fro, distributing the breeze over a wide area, is rapidly increasing.

Modern hotels are fitting each bedroom with a small fan, and in offices, the library, dining room and bedroom of residences they are becoming indispensable.

Ceiling fans are largely used in stores, restaurants and cafes. The Gyrofan, a revolving fixture on which are mounted two small fans, is the latest device of this general character.

A portable electric vacuum cleaner removes dust and dirt from floors, drapery and upholstery without permeating the air with dust and germs.

Edison Service is safe, clean and economical.

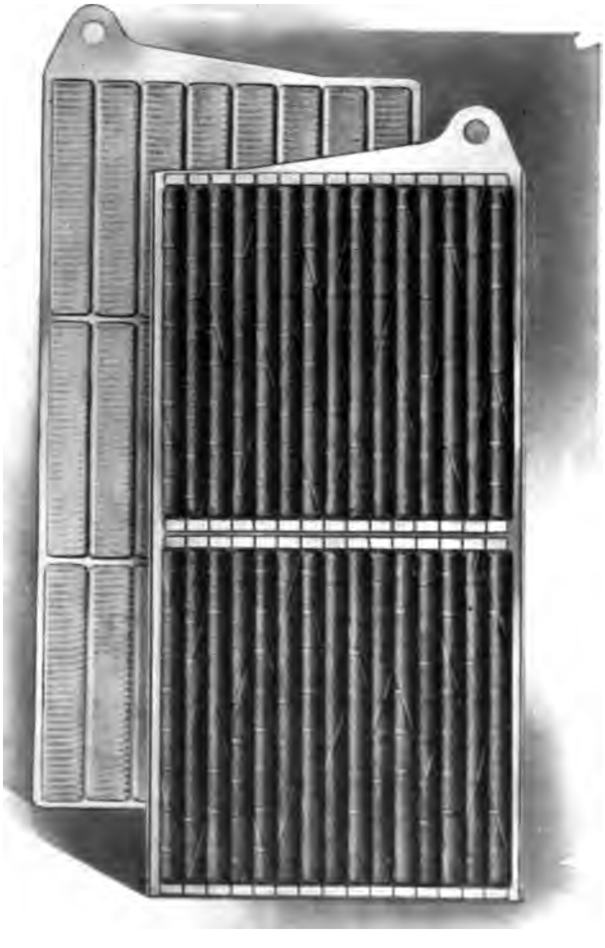
The Edison Storage Battery

THE new Edison storage battery, designated as Type A, is at present made in two sizes, the A-4, a cell having four positive plates, and the A-6, having six positive plates.

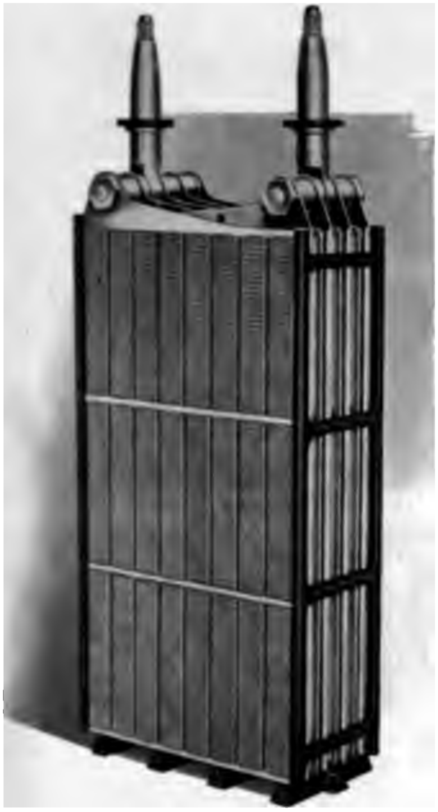
The Edison invention involves the use of an entirely new voltaic combination in an alkaline electrolyte in place of the lead peroxide combination and acid electrolyte, characteristic of all other commercial storage batteries. This not only insures durability and greater output per given weight of battery but eliminates many troubles inherent in the lead-acid combinations which have hitherto hindered the full application of the original storage battery idea.

In the Edison battery the active materials are oxides of nickel and of iron respectively, in the positive and negative electrodes, the electrolyte being a solution of caustic potash in water.

The retaining cans are made of sheet steel, welded at the seams by the



Edison Storage Battery, Type A, Positive and Negative Plates, Showing the Different Structure of Each. The positive plate has pencil-shaped tubes with steel ferrules that prevent expansion, and the negative plate has flat, rectangular pockets

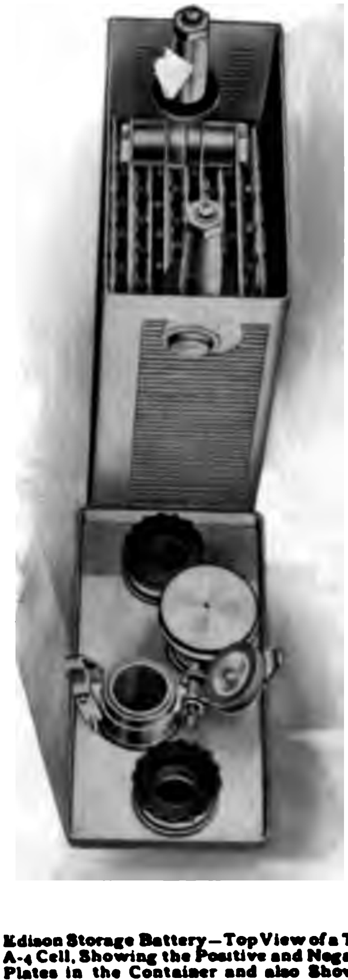


Edison Storage Battery, Showing Positive and Negative Plates of the Type A-4 Cell Assembled but Removed from the Container. The vulcanized rubber insulation at the bottom of the plates and at each end can be plainly seen

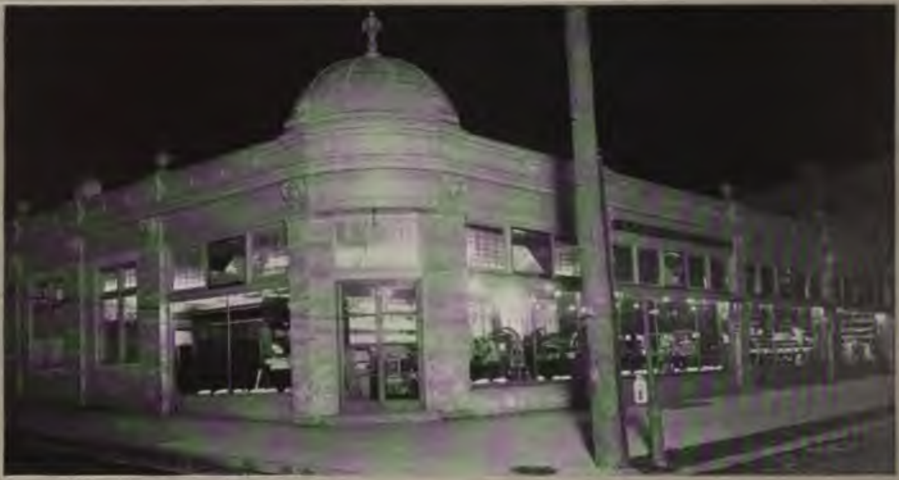
autogenous method, making leakage or breakage from severe vibration impossible. The walls of the can are corrugated, to give the greatest amount of strength with a minimum weight. The can is electroplated with nickel, and a close union of the steel and nickel is attained by fusing them together so that they are practically one metal. This coating of nickel protects the steel from rust and also gives to each cell an attractive and highly finished appearance.

Each positive plate consists of a grid of nickel-plated steel holding thirty tubes filled with active material, in two rows of fifteen each. The tubes are made of very thin sheet steel, perforated and nickel-plated. Each tube is reinforced and protected by small ferrules, eight in number. These prevent expansion, thereby retaining perfect internal contact at all times.

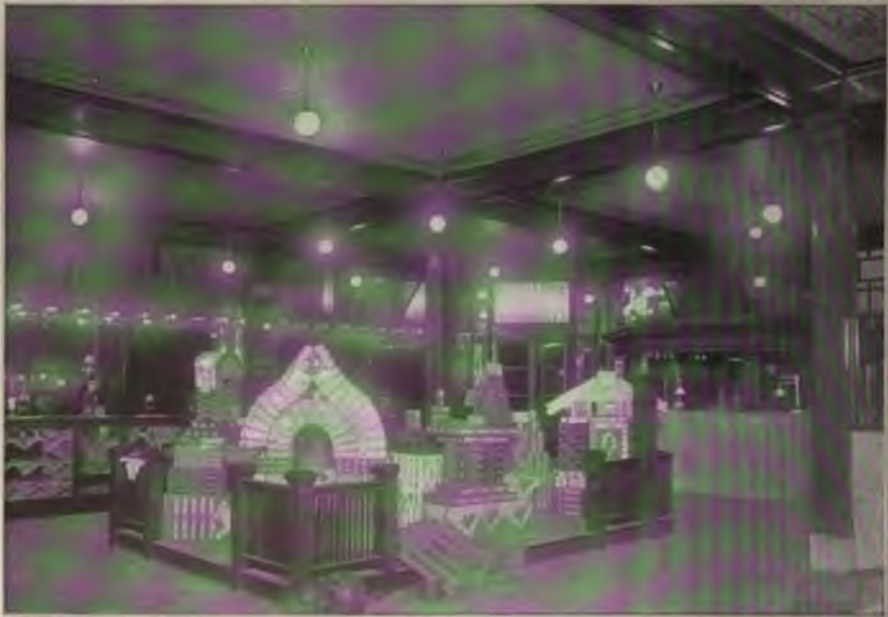
The active material in the tube is interspersed with thin layers of pure



Edison Storage Battery—Top View of a Type A-4 Cell, Showing the Positive and Negative Plates in the Container and also Showing the Removed Cover, with the Openings for the Two Poles, the Separator, and the Water-Tight Cap which Covers the Filling Aperture



Exterior of Messrs A S Radcliff & Son's Grocery Store and Market at the corner of Riverside Avenue and Ludlow Street, Yonkers



The interior of the store presents a brilliant appearance, owing to the excellence of its lighting, which includes fifty-seven 40-watt tungsten lamps, eighteen 3-glower Nernst lamps, and seventy-five 8-candle-power incandescent lamps, equipped with Frink reflectors, the latter being used for window lighting metallic nickel in the form of leaves or flakes, manufactured by an electrochemical process.

A negative plate comprises twenty-four flat rectangular pockets supported in three horizontal rows in a nickel-plated steel grid. The pockets are made of thin nickel-plated steel, perforated with fine holes, each pocket being filled with an oxide of iron very similar to what is commonly called iron rust. In the negative plate each pocket is subjected to very heavy pressure so that it becomes practically integral with the supporting grid.

In a cell the positive and negative plates are assembled alternately and connect the positive plates with the positive pole, and the negative plates with the negative pole. The plates of each group are hung on a connecting rod perpendicular to the pole. They are correctly distanced on this rod by nickel-plated steel spacing washers and held firmly in contact by nuts screwed on both ends.

It will be seen that in an assembled cell nickel plates are alternated with iron plates, and that the two outside plates are both iron or negative plates. The outer surfaces of the outside plates are insulated from the retaining can by hard rubber sheets. Specially designed hard rubber pieces are fixed between the can and the side and bottom edges of the plates; and these, together with hard rubber rods inserted between the plates, maintain correct spacing of the plates at all points and insure permanent insulation.

Each cell has a cover which is welded in place by the same autogenous process used for the side and bottom seams.

On the cover are four mountings. Two of these are the stuffing boxes through which the positive and the negative poles extend. One of the other two is the separator, so called because it separates spray from the escaping gas while the battery is charging. This prevents loss of electrolyte and renders the gases inodorous.

The fourth mounting is an opening for filling the cell with electrolyte and for the adding of distilled water to take the place of that which evaporates. This opening has a water-tight cap which is held in place by a strong catch. Fastened to this catch is a small spring, so arranged that the cap will fly open unless properly fastened. This reduces the possibility of leaving the cap open accidentally, thereby causing the electrolyte to spill out should the cells be violently agitated by vibration of the automobile.

The electrolyte consists of a twenty-one per cent solution of caustic potash in distilled water.

In an assembled battery each individual cell is held securely in place, and from contact with the adjacent cells by means of a small hard rubber button which extends through the slat on the side of the tray and fits over an emboss pressed out on the side of the can. This button, by performing its function of holding each cell firmly in position, maintains an air gap between cells and thereby insulates them from each other.

The bottoms of the cells are held in position by small buttons protruding from a conveniently arranged wooden block fastened to the bottom slats of the tray. In the bottom of each cell

Hobart Electric Manufacturing Co's Electric Coffee Mill

are four small indentations which fit over these buttons. A rubber apron insulates the cell from the block. The buttons prevent the cells from becoming displaced by sudden jolts or shocks affording a very rigid support.

Electrical connections between cells are made by means of heavy copper connectors, well nickel-plated. Each connector consists of a solid copper wire, on the ends of which are swedged specially shaped steel lugs which fit over the binding posts and make a taper-joint connection with them, insuring perfect electrical contact. A nut holds each lug securely in place. This makes bad contact impossible when the connector is once properly in place, even though the battery may be subjected to violent jolting, such as is often received in electric automobiles.

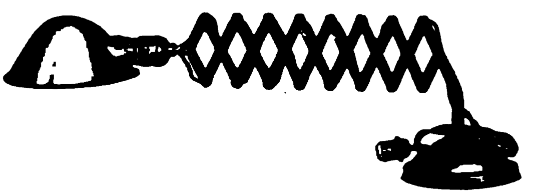
Emerson 8-inch Desk Fan for Alternating Current Circuits. Made by the Emerson Electric Manufacturing Company, St Louis, Missouri

The Edison battery cannot be injured by overcharging and does not deteriorate when left discharged.

An Unique Installation

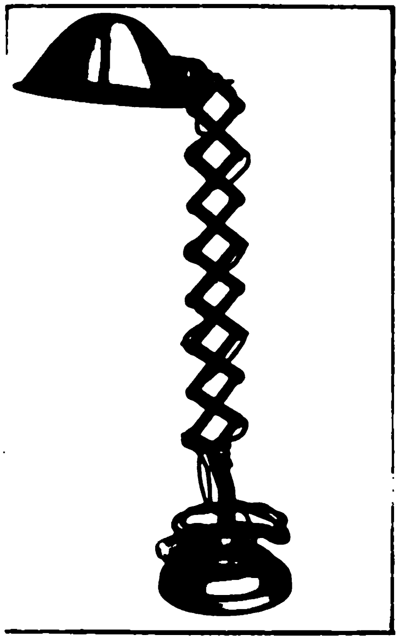
IN the establishment of the Dickinson Process Company, 124 White Street, there is an interesting lighting installation.

This company's business is a new process for lithographing engravings, by which powerful illuminants used in photography permit the transferring of a picture or drawing direct to a metal cylinder of zinc or bronze. From 800 to 5,000 impressions may be struck off per hour. The lighting equipment consists of the following:



The "All-Ways" Portable Lamp in Horizontal Position

One 11½-ampere and one 17½-ampere Cooper-Hewitt lights for developing; two 8-ampere, two 30-ampere and one 22-ampere focussing arc lamps. The power equipment comprises one ¼-horse-power motor operating rotary grainer; one ¾-horse-power motor operating flat grainer; one 2-horse-power motor operating lithographic hand press for sample impressions.



The "All-Ways" Portable Lamp in Vertical Position

Electric Coffee Mills for a Large Grocery Company

JAMES BUTLER, Inc, the large wholesale and retail grocery company, has recently installed in its various stores in New York and vicinity more than one hundred Hobart electric coffee mills, like that shown in the illustration.

These mills are manufactured by the Hobart Electric Manufacturing Company and sold by Mr E C Bodenhoff, manager of the New York office, 24-26 East Twenty-first Street.

Portable Electric Lamps

THE practical value of the "All-Ways" adjustable portable electric lamp will be easily recognized by those who have use for such a fixture, as it meets with every requirement in the office, store or home. It is especially useful as a desk lamp for bookkeepers and stenographers, on account of its many adjustments, enabling the user to throw the light rays in any direction desired.

The lamp may be easily raised or lowered and an adjustable shade and joint at the socket permits adjustment of the light for any class of work. The standard also has a swivel movement in the base.

The "All-Ways" portable lamp consits essentially of an iron base spun over with brass, a collapsible standard of steel securely riveted together, a Bryant "New Wrinkle" key socket, and an aluminum portable shade. The cords are secured to the standard by insulated eyelets fastened in the rivets. The truss form of construction of the standard is very substantial, though light.

The accompanying illustrations show the "All-Ways" lamp in several of the many possible positions. It is manufactured by the American Electric Telephone Company, 6500 State Street, Chicago, Ill.

The Emerson Residence Type Oscillator Fan

Motor-Driven Machinery in a Piano Factory

A Part of the Behning Piano Company's Plant, 306-308 East 133d Street

THE Behning Piano Company, manufacturers of grand, upright and player pianos, have an interesting installation of motor-driven machinery in their extensive plant, 306-308 East 133d Street, Bronx.

The various motor-driven machines are used for boring, sawing, jointing, planing, turning and sandpapering the different parts and material which enter into the construction of a piano.

The machine equipment comprises two Fairbanks boring machines, driven by one horse-power motors; two Clement boring machines, driven by a two and a three horse-power motor respectively; two Clement circular saws, one driven by a five and the other by a three horse-power motor; two Clement jointers, each driven by a three horse-power motor; one Clement planer, driven by a five horse-power motor, comprise the electric equipment.

In addition to these machines there are one Adamite slow-speed sander, driven by a three horse-power motor, and one Clement band-saw, driven by a three horse-power motor, and a Seneca Falls lathe, motor driven.

The company states that The New York Edison Company is giving them excellent service for all of their requirements.

Use Edison Service for light, power and some heat.

An Appreciation of Our Artist

"THERE is no nonsense about 'The Edison People,' designed by Frederick G. Cooper. They are the most decorative humorous drawings I have seen. Really funny draughtsmen are rarer than most folks imagine. Decorative artists who can exploit masses, pure line, and texture, like Mr. Cooper, are few and far between, but more unusual still is it to find one with so easy a sense of humor. I am one myself, so I know. 'The Edison Company' must feel good every time they look at those jolly drawings, which are clever enough for anything. If Mr Cooper never draws another line or never sees another joke, his reputation on just these drawings should last his lifetime." —*Charles E Dawson in The Printing Art.*

A New Electric Sign for the Gimbel Store

IN line with their progressive spirit the Messrs Gimbel Brothers have placed a much larger electric sign on their new building to replace the former sign.

The new sign is 150 feet in length and fifty feet in height. The first row of lettering reads, "The Gimbel Store"; the second row "Gimbel Square," followed by eighteen monogram letters. Beneath these letters there is a line reading, "Gimbel Brothers;" the whole is surrounded by an illuminated border.

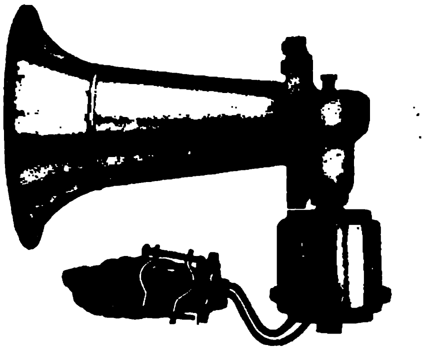
Enclosed in another border, lower in the sign, are the words "Light and Power Supplied by The New York Edison Company."

The monogram letters enable

Planer Driven by an Electric Motor. Behning Piano Company forty different changes or announcements to be made, amounting virtually to forty-one different signs. The enormous advertising value will be readily appreciated.

There is approximately 2,500 eight candle-power lamps in the complete sign.

The Klaxon Electric Horn



The Klaxon Electric Horn

IN the Klaxon electric horn the sound is produced by the rapid vibrations, about thirty thousand a minute, of a specially prepared steel disc.

The vibrations are caused by the impingement of a ten-toothed wheel or rotor against a button-shaped shoulder in the center of the disc. The toothed wheel is directly connected to an electric motor, which is operated at three thousand revolutions a minute when connected to eight dry cells, or a six to eight-volt storage battery.

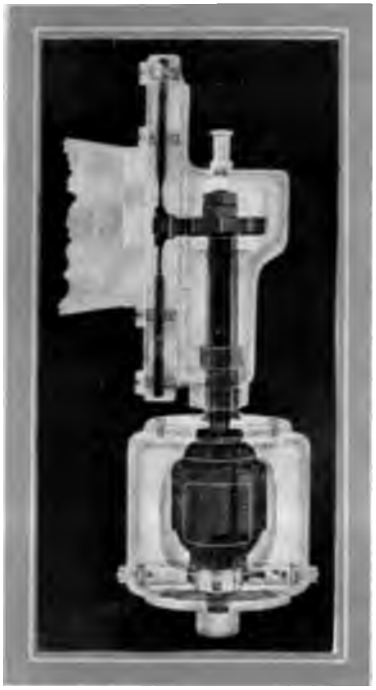
The Klaxon Company, 1 Madison Avenue, are the sole distributors for the United States.

Drill Operated by an Electric Motor. Behning Piano Company

Large Electric Garage

THE H C & A I Piercy Contracting Company maintain an extensive garage at 422-430 West Fifteenth Street, with a branch at 483-485 Clermont Avenue, Brooklyn.

Many years ago the founder of the Piercy Company conceived the idea of



Mechanism of Klaxon Electric Horn

supplying to business houses complete horse and vehicle outfits at a fixed rental.

The business grew rapidly, and in line with progress electric vehicles were added to the company's equipment. The New York garage, shown in one of the illustrations on the following pages, is a six-story building, with charging facilities on each floor.

The wagons are transferred to the various floors by a large 10-ton electric elevator. Thirty-three commercial vehicles are operated at the present time, and in addition many automobiles belonging to other companies are housed and maintained.

An electric hair dryer is a delight to the ladies.

Waverley Electric Vehicles Go Around the World

THE estimation in which American made electric vehicles are held throughout the world may be judged by two foreign orders recently received by the Waverley Company, of Indianapolis. The first of these came from the distant island of Java, in the Dutch East Indies, from a Mr J E Court, of the town of Cheribon.

The order was for a Waverley four-passenger brougham, the most expensive car built by the company, and was accompanied by London exchange for the full value of the car and extras. The customer mentioned the fact that

Sandpapering Machine Driven by an Electric Motor. Behning Piano Company

Some of the Electric Commercial Vehicles Operated by The H C & A I Piercy Contracting Company

he had seen a Waverley advertisement in a copy of *Harper's Weekly* that came to him and placed his order on the strength of this advertisement.

Local conditions dictated the use of solid tires, and the order was accompanied by a request for duplicates of all breakable parts, such as battery jars, since these could not be replaced near home.

A peculiar feature of the order was the building of a special footman's seat over the rear battery box, the municipal ordinances of Cheribon making it illegal to leave a vehicle of any kind standing on the street without a servant in charge. Shipment of the car will be made in about sixty days, via Rotterdam, Holland.

The second order referred to was for a Waverley two-passenger coupe for the firm of Wm Barbour & Sons, Ltd, the well-known linen thread manufacturers of Lisburn, Ireland. With the car goes an additional leather top, to be used in summer in place of the coupe top, this interchangeable feature being one of the special advantages of the Waverley coupes and broughams.

The Barbour family crest, representing a dove with an olive branch over the words "Pax et Libertas," is to be painted on the panels of the doors.

While the upholstery of the Java car is to be in durable leather, that of the coupe for Ireland will be in the richest broadcloth.

These two orders following recent sales of Waverleys to San Domingo, Honolulu, etc, indicate the increasing demand for American built electrics abroad. It is indeed recognized all over the world that the problems of electric propulsion are better understood and better met in this country than elsewhere, and the steady growth of this foreign trade is to be expected.

Don't relegate your electric fan to the storeroom! Let it blow a breeze through the radiator, thereby increasing the heating efficiency.

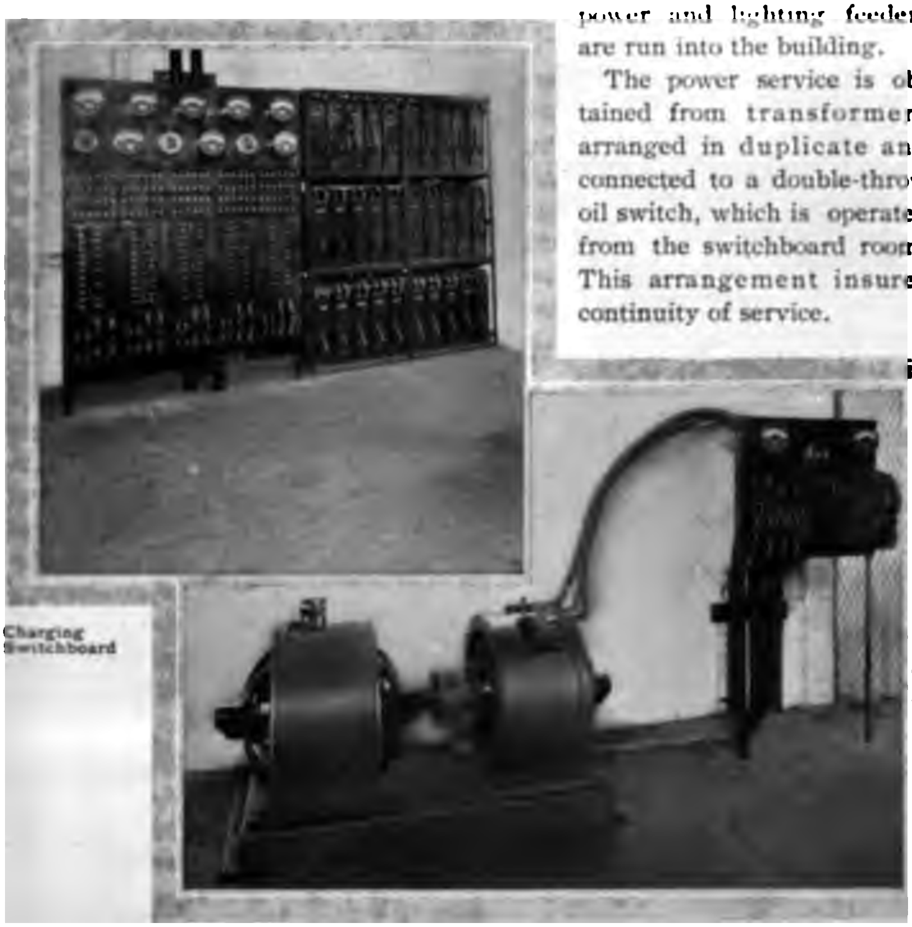
Use Edison Service.

Electrical Equipment of the New Bronx Theatre

THE new Bronx Theatre, which was described in a general way in a recent issue of THE MONTHLY, is one of the latest of New York theatres, and its electrical equipment is of particular interest and includes a motor-driven fire pump, vacuum cleaner and ventilating fan, aside from the lighting of the stage and auditorium.

The building is supplied with two-phase 110-220-volt alternating current from the Edison System. The service enters in the rear court, under which the transformer vault is located. From the vault separate power and lighting feeders are run into the building.

The power service is obtained from transformers arranged in duplicate and connected to a double-throw oil switch, which is operated from the switchboard room. This arrangement insures continuity of service.



Charging Switchboard

Motor-Generator Outfit and Charging Panels. The H C & A I Piercy Contracting Company

The lighting feeders are run in duplicate from the transformer vault to the stage switchboard, on which is mounted a double-throw switch to control all, with the exception of the exit and box office lighting. The front of the house, all signs and the outside lighting are supplied through a panel in the box office connected to a separate transformer located in the front portion of the building.

The source of supply for the exit lights is a separate feeder taken from the main lighting buses on the stage switchboard and from the transformer in the front of the building. The lights are controlled by a double-throw main switch, so that they have three separate sources of supply.

There are two switchboards. The one in the basement is for controlling all power wiring, and consists of two panels, one two-phase four-wire, and one two-wire direct current, fed from a 25-kilowatt motor generator. The direct current is used on the stage and for a moving picture machine.

The stage switchboard is located on the left side of stage about four feet six inches from the proscenium wall, which allows ample space behind for free movement. This board is built in three panels, one controlling all auditorium lighting, the other two all of the lighting behind the curtain besides containing the main lighting switch and the switches controlling the direct-current pockets on the stage. Above the switches on these panels are mounted the handles controlling the dimmers, which are placed directly back of the board. The bus-bars on the rear of the board are divided into one section of auditorium lighting, one for each of the four colors used in the foot and border lights and one for all independent lights, such as the orchestra pit and work lights.

The lighting feeders from the stage board to all of the panels are three wire and all the branches two wire. Arranged in pairs on either side of the stage are five 25-ampere alternating current pockets and five 50-ampere direct-current pockets. There is also a 2-ampere direct-current picture machine outlet in the rear of the gallery.

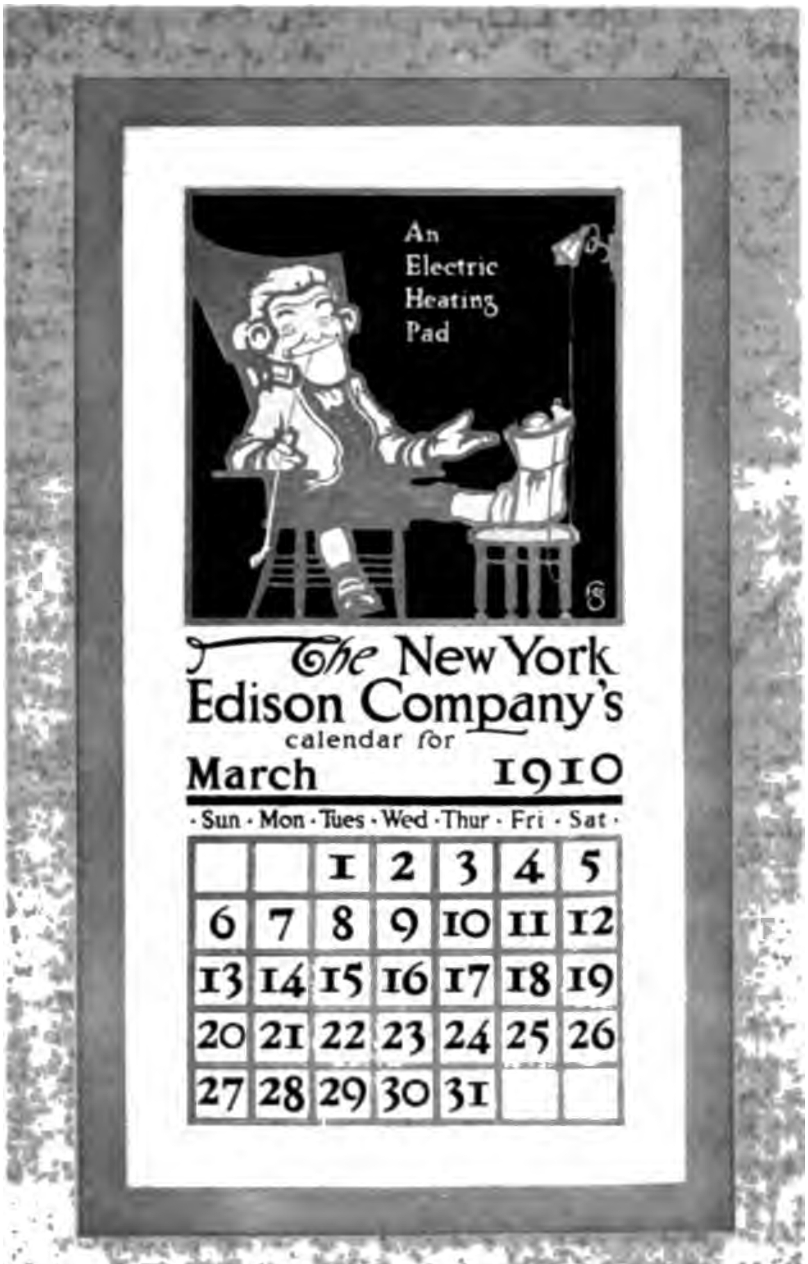
The stage is illuminated by arc and bunch lights, by the footlights, the proscenium and five rows of border lights, all arranged in four sections of four colors. Each color is provided with a separate dimmer. There are 1200 32-candle-power lamps used in the borders and foots.

The lighting of the auditorium is controlled from the house section of the stage board and is divided into sections controlling some 500 16-candle-power lamps.

The panels controlling all stage and auditorium lighting are mounted in steel cabinets on the proscenium wall, directly above the switchboard.

The building was erected from the plans of Messrs MacElphatrick & Sons, by the American Real Estate Company, Mr C S Shumway, General Superintendent. The W G Cornell Company were the engineers and contractors for the electrical and ventilating equipments, and Mr E Ashley the electrical engineer.

Edison Service is economical.



The New York
Edison Company's
calendar for
March 1910

Sun	Mon	Tues	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

The New York Edison Calendar for March

Exact Size

A copy will be sent upon request

WIRING AND INSTALLATION CONTRACTORS

West of Broadway and Fifth Avenue

Amsterdam Ave 452—C A Christesen
Amsterdam Ave 648—H Blumstetter
Broadway 237—Electric Cons & Supply Co
Broadway 335—Park Sullinger
Broadway 725—L F Benn
Broadway 1123—Burkart Electrical Co
Broadway 1168—The Chas L Eidlitz Co
Broadway 1947—S Gruhn & Co
Broadway 2382—H S Beidleman
Broadway 2734—H Reinwald Jr
Church St 50—L K Comstock & Co
Columbus Ave 220—T F Carr & Co
Columbus Ave 330—C T Pinkham & Co
Columbus Ave 549—Hoffman & Elias
Cortlandt St 26—Cleveland & Ryan
Cortlandt St 39—Blackall & Baldwin
Cortlandt St 39—Berg & Co
Cortlandt St 84—Bleyle Elec Co
Fifth Ave 65—L A Whitney
Fifth Ave 500—Russell Electrical Co
Fifth Ave 503—Flucker & Keedwell
Fifth Ave 571-573—Hatzell & Buehler
Greenwich St 183—Thomas & Johnson
Greenwich St 255—F C Ross
Hudson St 660—Edw S Eaton
Prince St 101—Sandback & Co
Sixth Ave 110—J V Johnson
Sixth Ave 780—C C Bohn Electric Co
Sixth Ave 873—John W Flint
Seventh Ave 194—Emil Christensen
Seventh Ave 228—Rob E Leve
Thames St 27—Watson Flagg Eng Co
Thames St 27—McLeod Ward & Co
Warren St 73—J P Hall
Warren St 96—Wm F Duffy
Warren St 96—Independence Electric Co
West St 116—Knickerbocker Electric Co
West St 463—Western Elec Co
West Broadway 52—F A Frey
West Broadway 281—J S Bihin
West Broadway 430—Jas H Roberts
West 21st St 35—W J McClure
West 25th St 130—N Y Elec Install Co
West 26th St 24—J Geo Payne Co
West 26th St 109—M B Foster Electric Co
West 28th St 11—Thos L Dillon
West 28th St 53—E W Hirsch Electric Co
West 29th St 14—Conduit Wiring Co
West 29th St 15—Dennis G Brussel
West 30th St 110—Tucker Elec Con Co
West 33d St 209—E J Electric Installation Co
West 34th St 45—Peet & Powers
West 38th St 72—A J Buschman Co
West 42d St 29-33—Germond & Turner
West 42d St 112—Oberg Blumberg & Bleyer
West 42d St 316—J F Baker & Co
West 45th St 100—F A Bohling
West 49th St 422—Frank Pisch
West 61st St 120—J L Moriarty
West 72d St 176—T J Kaufman
West 111th St 147—Mariposa Electric Co
West 116th St 225—Lewis S Davis
West 135th St 114—Nathan Zolinsky
West 135th St 238—M Kohosoff

East of Broadway and Fifth Avenue

Beekman St 1—Elec Motor Insp & Rep Co
Beekman St 74—Jordan Bros
Beekman St 101—Fleck Co M F
Cedar St 16—Wm Truswell & Son
Dover St 8—E W Hazazer
East 8th St 43—George D Beinert
East 13th St 5—Mautner & Freund
East 22d St 27—Hunt & Morgan
East 22d St 113—J Livingston Jr & Co
East 22d St 202—Maurice Young
East 23d St 42—Kimball Electrical Cons Co
East 23d St 145—Bateman & Miller
East 25th St 122—Isador Fajans
East 30th St 13—Geo H Shuman
East 37th St 207—Reis & O'Donovan
East 42d St 39—Edwards Electrical Con Co
East 42d St 45—Cowden & De Young
East 55th St 147—Morris Levi & Co
East 72d St 167—E J Dustman
East 77th St 440—Edw Zenker
East 125th St 13—L L Strauss
East 125th St 57—Leo S Stern
East 130th St 77-9—Blackman & Guttman
Elm St 28—James F Hughes Co
Frankfort St 26-30—J F Bidstrup & Co
Grand St 176—Nathan Klein
Grand St 235—Joseph Waintrob
Great Jones St 38—Geo Weber
John St 54—Alfred Whiteley
Liberty St 120—Edward B Stott & Co
Liberty St 126—S Arthur Brown
Madison Ave 314—Nimis & Nimis
Madison Ave 1122—F W Cohn
Nassau St 82—Mfrs & Inventors Elec Co
Park Ave 103—Stehlin-Miller Co
Park Ave 1630—Guarantee Elec Co
Pearl St 59—Oswald Elec & Eng Co
Pearl St 119—Kelting Eng & Supply Co
Rose St 18—Fred'k Pearce Co
Rose St 35—Geo Weiderman Elec Co Inc
Seventh St 138—H A Schreiber
Third Ave 2367—Rappaport Elec Co
Union Square 42—G Curt Kastner
Walker St 101—M F Finkelstein
Wall St 2—Edwin C Gee
Wall St 99—Chas Davidson

Bronx

Baker & Fox—313 East 141st St
Evans & Karstner—1 Madison Ave
Hinners F J Jr—585 East 135th St
Israel & Co—450 East 148th St
Kips John & Co—161st St & St Ann's Ave
Kirschoff & Pettit—584 East 163d St
Landy Jacob—673 Elton Ave
Mangam H I & Co—599 East 162d St
Reliable Elec Co—233 Alexander Ave
Ross E L—356 East 138th St
Schwarzler M & Son—460 E 167th St
Vielberth Jos F—2319 Prospect Ave
Woods Lewis H—2357 Jerome Ave

Yonkers

Excelsior Gas & Elec Fixture Co—42 Warburton Ave
Intervale Electric Co—12 N Broadway
Nugent A W Inc—5 Dock St
Russell & Co—Putnam Bldg
Seaboard Elec Co—55 Warburton Ave
Stroh A A—26 Hudson St
Underhill Harry—Bronxville N Y
Westchester Elec Equip Co—34 N B'way

The Edison Monthly

April 1910

VOLUME II NUMBER 11

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Editorial

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It is about time to think of how to keep cool during the coming summer. Why suffer with the heat when the small electric fan will make a room comfortable without more cost than operating the ordinary incandescent lamp?

* * *

When one stops to consider the innumerable tasks now manually performed, that could be done far better, quicker and cheaper by an electric motor, it would seem that the march of progress is not so rapid as it might be. There are many small machines and appliances, each requiring an attendant to operate it, when by the use of small individual motors or by a large single motor all of these machines could be operated, materially reducing the labor required, and at the same time increasing the production.

* * *

During the past winter transportation of all kinds received the hardest test of many years owing to the heavy snowfalls and the severity of the weather.

The large cities naturally suffered the most on account of the congestion of traffic, but the electric commercial vehicle kept on at work undaunted, and made such a remarkable showing in the face of adverse circumstances that the daily press of the principal cities has commented on it, and made predictions that the "electric" will be the wagon of the future.

* * *

The electric vehicle having made such an excellent record for commercial work, there is certainly a splendid field in large cities for municipal haulage. For drawing snow, ashes and refuse a large electric truck could perform the work, which now requires several horse-drawn vehicles, in a much shorter time and at less expense. There are no complications about an "electric," so that the ordinary wagon driver could in a few hours learn to operate it.

Generally dumping places are at some distance from the center of the city, so that the time saved in going to and from the collecting points would be a great factor in favor of the "electric," if there were no other advantages.

Another suggested innovation that should be eminently successful is a large electrically operated vacuum cleaner for street cleaning. Mechanical vacuum cleaners have been successfully used for this purpose, but they are open to many objections, the chief of which are that they are noisy and require the services of a skilled mechanic; whereas with an electric machine the streets could be cleaned rapidly, with but little noise and without an experienced mechanician.

◆

Electrical and mechanical therapy is coming more and more into use for treating chronic ailments, and the results thus far obtained are such as to arouse the greatest hopes for the future of this kind of treatment. In this field electricity has no competitor, for the treatment itself is founded on electricity. In fact, the up-to-date doctor's office often resembles an electrical testing laboratory; among the equipment will usually be found induction coils of various sizes, vibrator motors, motor drills, motor-generator sets, static machines driven by motors, electric lamps of different sizes and shapes, electric cauterizers, and other electrical heating apparatus.

In hospitals and operating rooms there are many ways in which light can be employed in the medical world. Electric light is the coolest and most sanitary method of lighting sick rooms and hospitals, and it is the best substitute for daylight if an operation has to be performed at night. In dental surgery a good, steady light is of the utmost importance, which is always insured where electric lights are used.

◆

Electric signs are now regarded as among the most profitable advertising mediums. Much ingenuity and art have been exercised in improving the designs and heightening the effect of these fixtures.

The magnitude of the display of signs for several miles along upper Broadway, above Fourteenth Street, is a matter of wonderment to visitors.

It is not to be supposed that shrewd money-making merchants use electric signs if they did not bring business. No one can help reading an attractive sign, and its effectiveness is in proportion to the population.

◆

In the majority of trades heat is required at some stage of the work to a greater or less degree, and electricity will be found a most efficient means of supplying the degree of heat necessary.

The electric iron is fast becoming an important factor in the manufacture of clothing. By its use the liability to damage by soot is eliminated, and the general temperature of the room is not raised.

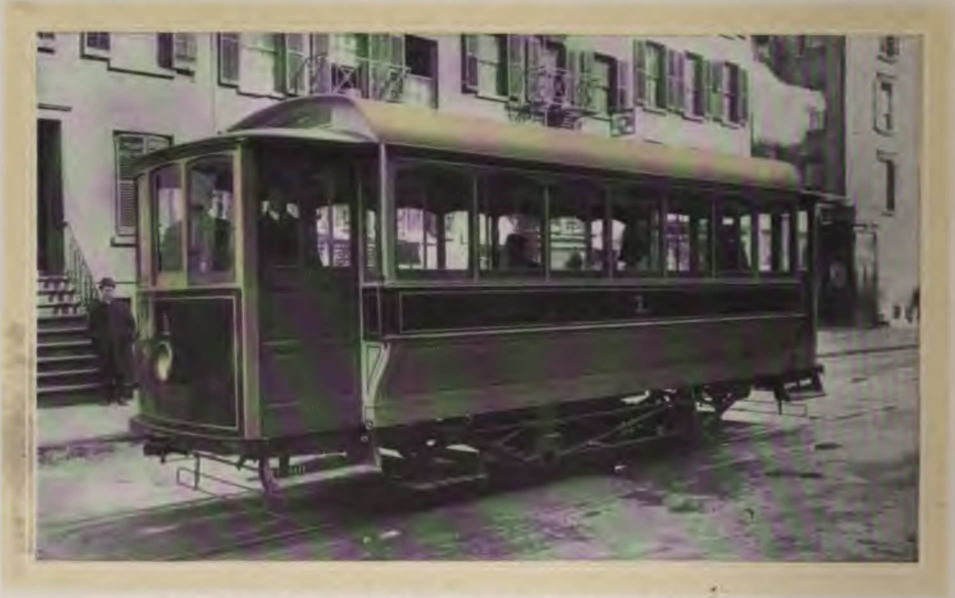
Electric hatters' irons and laundry flatirons of every description have increased the amount of work turned out and greatly improved the quality of the work done.

The cost of operating electric irons is less than the cost of coal for the laundry stove when used to heat irons only. It has been estimated that each worker, with ordinary sadirons, loses one minute out of every ten trying to keep the irons at the right temperature for use. This means a month in each year is lost.

Electric irons maintain the proper heat steadily. There is no journeying to and from the stove for hot irons, no scraping or waxing. The irons are simple in construction, convenient, durable and reliable.

The Edison-Beach Electric Railway Car in New York

THE Twenty-eighth and Twenty-ninth Street Crosstown Railroad Company has recently placed in service on its lines an Edison-Beach electric railway car. The operation of the car thus far has been entirely satisfactory from every point of view.

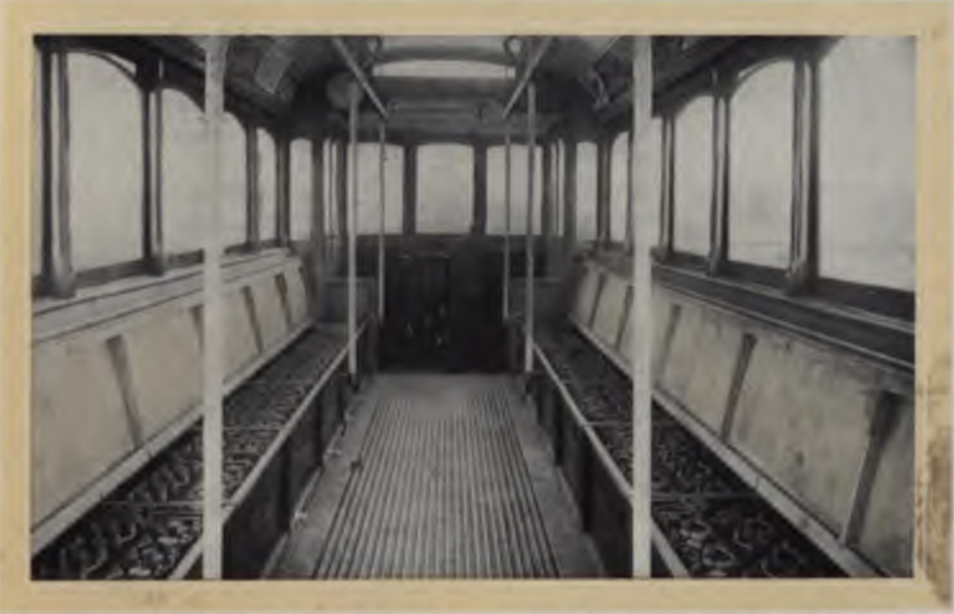


The Edison-Beach Electric Railway Car on Twenty-ninth Street

We append a description for which we are indebted to the *Electrical World:*

The body of the car is eighteen feet long between posts, with four-foot vestibule platforms. The width at the sills is six feet six inches, and the width at the drip rails seven feet three inches. The seating capacity of the car is twenty-six. The underframe of the car is made up of two three-inch by six-inch ash longitudinal sills, and nine cross-sills of the same size and material. A steel tie rod runs by the side of each cross-sill and passes through the longitudinal sills, thus firmly binding the under structure. Two eccentric arches, each made of a sheet of three-ply veneer, form the roof, and are held in place by seven carlines conforming in outline to the two arches, and each of which is attached at the outer end to the vertical posts. The ends of the roof plating rest on the end bulkhead and the carlines being steel-plated, a light and strong roof results. The veneer has the usual canvas covering.

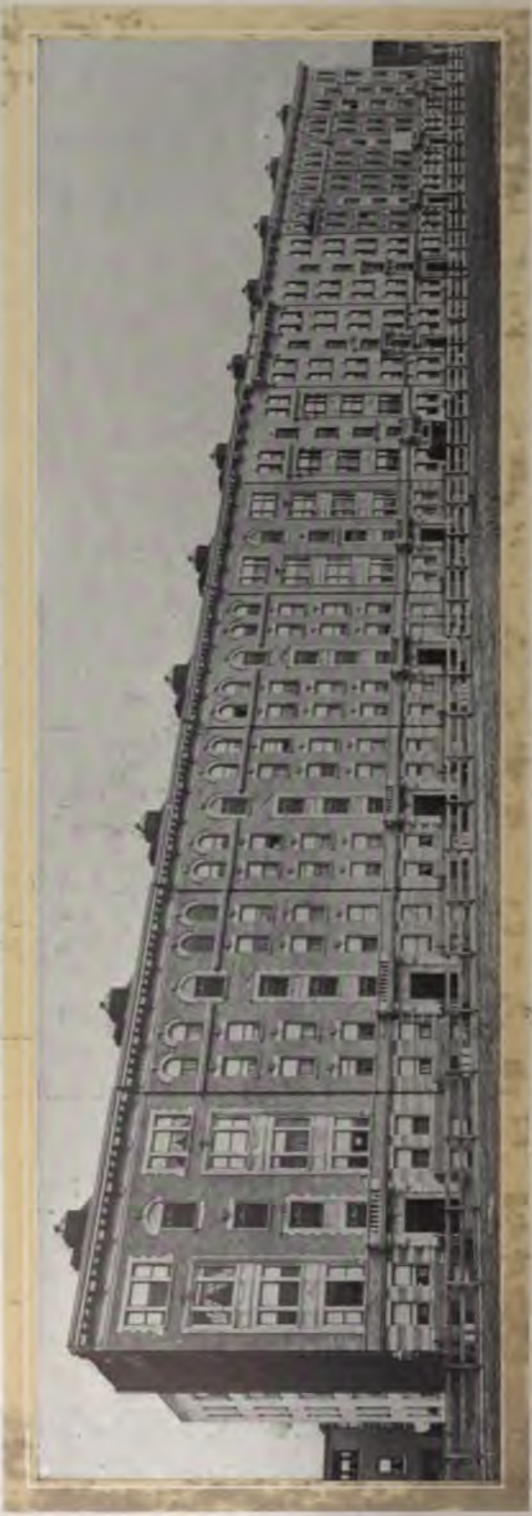
No side ventilation is provided in the car when the windows are closed, adjustable end windows performing this function. Under each seat, running the entire length of the body of the car, is a lattice steel electrically welded girder, which also forms a box for the batteries, a seat rest, a support for the side posts and a remarkably firm foundation for the entire structure. The girder is bolted to all cross-sills, side sills, end bulkhead, side posts, and by the interior grab rail serves also to support the roof. This lattice girder is the novel feature of the car body, and when the latter is loaded in the center with two tons, and supported on each end only, the deflection is hardly noticeable. The ordinary end doors are omitted in the car, but the vestibules are entirely enclosed. Hand rails of white enamel, two longitudinal and four vertical, are employed in place of straps, and the vertical rails also serve for holding the lamp fixtures and act as a conduit for the wires, besides supporting the roof, as previously noted. The interior of the roof is painted white, and the car is lighted by means of eight ten-candlepower, twelve-volt tungsten lamps.



Interior of the Edison-Beach Car, Showing Edison Storage Batteries Under Seats

The battery equipment of the car consists of 200 cells of Edison A-4 type for driving, and ten cells of the same type for lighting. These cells are separately connected in working, but are connected in series when being charged, so that any variations in voltage owing to the operation of the car will not affect the lamps.

The truck is of the standard-gauge, four-wheel type, with six feet six inches wheel base. The frame of the truck is of steel welded at all joints. The journal housings and all castings are of steel, and the bearings are of the ordinary railway type, except that they are ground and highly finished. Light steel wheels are mounted on two and one-half inch diameter steel axles, each of which is divided in the center and provided with a steel sleeve to permit the free rotation of each wheel with respect to its mate. The sleeve preserves the correct alignment, and is said to result in a considerable saving, depending upon the conditions of road, wheels, etc. The designer of the car, Mr Ralph H Beach, feels certain that this method of construction, which follows automobile practice, is advantageous where saving in energy is desired. Telescoping steel spring seats are provided between the truck and the body, which permit a side or end movement of not more than one-eighth inch. The vertical movement is, of course, free. By this means the manufacturer expects to obtain a very smooth-riding body, since it cannot under any circumstances sway more than one-eighth inch. The construction also per-



New Row of Apartment Buildings, 1022-1050 Hoe Avenue, Bronx. Lighted throughout by Edison Service

Anniversary Dinner American Institute of Electrical Engineers, Hotel Astor, February 24, 1910

The Acme Electric Garage, 501-505 Seventh Avenue

mits closer work on the toggle-brake rigging than is possible with ordinary methods.

The driving equipment consists of two five-horse-power, 110-volt Northern motors, which, besides possessing fairly high speed, are much lighter in construction than standard motors of the same output. The wheels are driven from these motors by means of a silent chain drive. During the trials it was found that the motors gave the car a maximum speed of fifteen miles per hour, and with fourteen stops per mile enabled a schedule of eight miles per hour to be maintained. The power consumption in accelerating is said to be about three and one-half kilowatts and in running about one and one-half kilowatts. The consumption is, of course, variable, and depends very much upon road conditions. The controllers are arranged to give the following three combinations: First step, batteries in multiple at fifty volts and motors in series; second step, batteries in multiple at 100 volts and motors in series; third step, batteries at 100 volts and motors in multiple. During the tests the car accelerated quite smoothly. The body of the car weighs 3,500 pounds, the truck and electric equipment 3,500 pounds, and the battery 3,000 pounds, giving a complete car of 10,000 pounds. In the design of the car many new features other than those mentioned are embodied, and while some minor changes have suggested themselves, the general make-up of succeeding cars will not differ essentially from that of the car described. The battery equipment is said to be capable of supplying energy for 150 miles on a single charge.

Well lighted show windows attract pedestrians and are productive of business.

The Acme Electric Garage

THE Acme Electric Garage, 501-505 Seventh Avenue, is one of the most up-to-date establishments of its kind in the city and is now taking care of thirty vehicles.

A rather interesting record has been made by a one-ton machine of the General Vehicle Company, which has averaged during the past five months a travel of thirty miles daily on one charge per day.

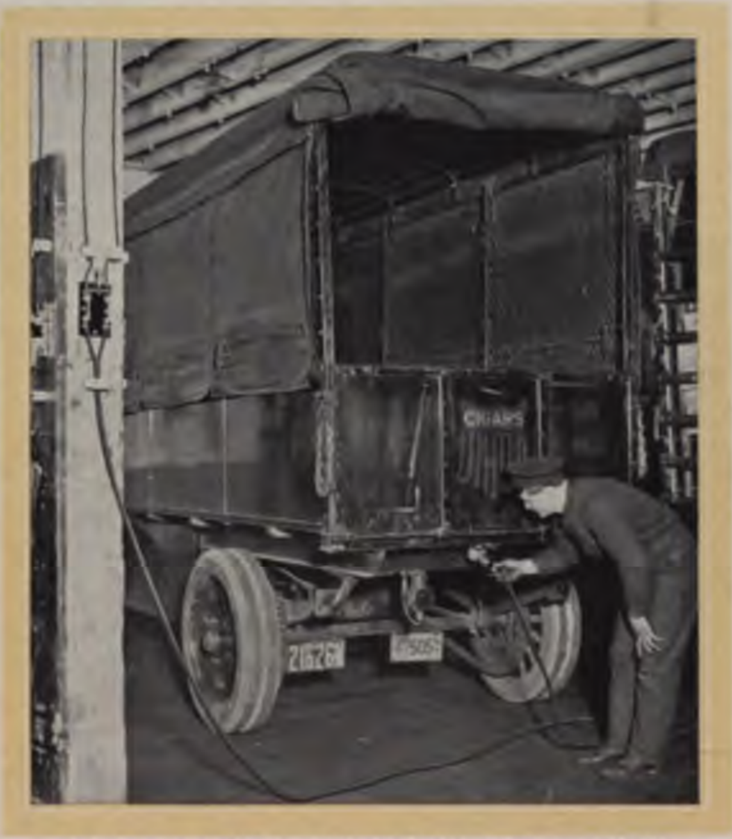
Another interesting record is that of a five-ton coal truck which, during the past three months, has averaged thirty miles daily on one charge, with a three-quarter of an hour boost at noon time. Frequently the truck, although rated at five tons, has carried six tons of coal. The owners state that it supplants six horses, trucks of this size requiring three horses each.

The cost of operation has averaged nineteen cents per ton mile. A gasoline truck would cost twenty-seven cents per ton mile.

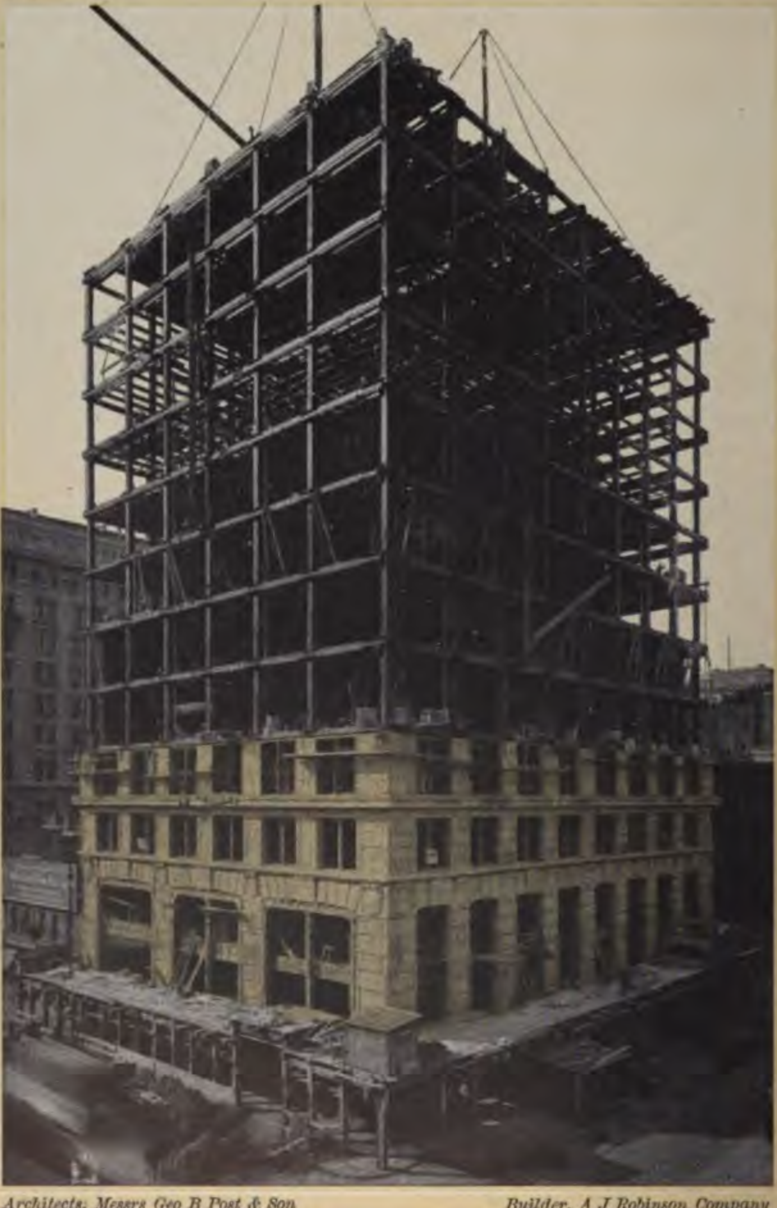
Electric Radiators for Drying a Vault

THE heating department of The New York Edison Company has recently installed two electric radiators consuming 3,000 watts, to dry a vault in the American News Company's building. The vault is in the sub-cellar of the building, and it has been a serious problem to heat it and keep it dry, as valuable books and papers are kept there. The electric radiators are performing their function very satisfactorily.

An electric hair dryer is a delight to the ladies.



Part of the Interior of Acme Electric Garage, Showing an Electric Truck Being Changed



Architects, Messrs Geo B Post & Son *Builder, A J Robinson Company*

The Milbank Building, Fourth Avenue and Twenty-fifth Street. A new eighteen story building in course of construction which has adopted Edison Service for about 10,000 incandescent lamps and over 500 horse-power in motors

The American Building Adopts Edison Service

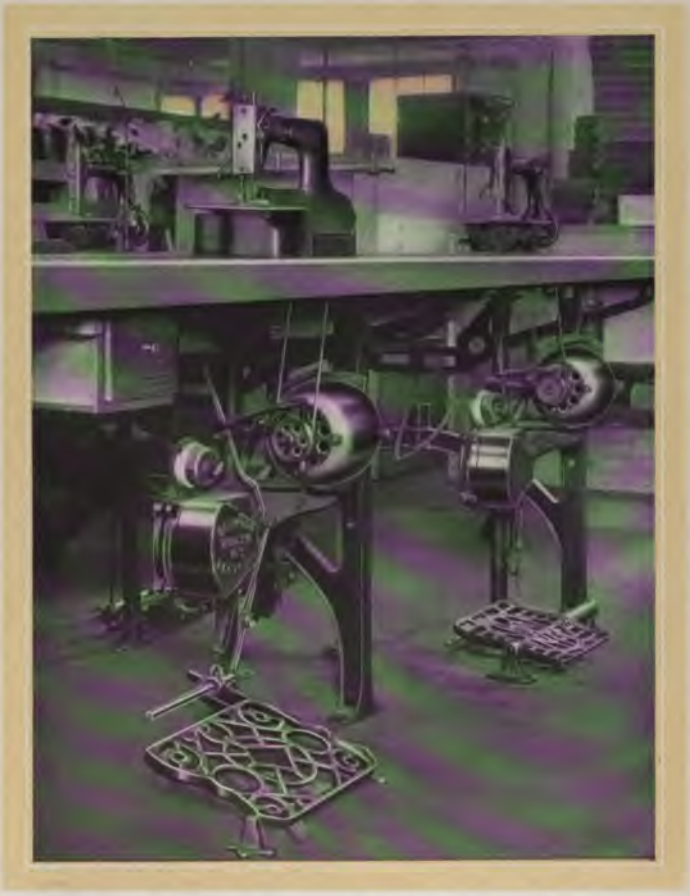
THE American Surety Building, at 100 Broadway, has closed down its private plant and contracted for Edison Service. This is a typical office building of large size, and gives another indication of the trend of the times in reference to the use of Central Station Service.

Architects, Messrs R H Robertson & Son

American Woolen Company's Building, Fourth Avenue and Eighteenth Street, which will be twenty stories in height when completed. Edison Service will be used for 10,000 incandescent lamps and nearly a thousand horse-power in motors

An Omission of Ours

IN describing the electrical equipment of the Behning Piano Company in the March issue of THE MONTHLY the name of the electrical engineer was inadvertently omitted.



Establishment of James R Keiser, Inc, Manufacturer of Neckwear, Fourth Avenue and Twenty-eighth Street. This company used forty electric irons, besides a large number of electric motors operating sewing machines as shown in this illustration

The entire electrical installation was designed and erected by Mr Lawrence L Strauss, contracting electrical engineer, 13 East 125th Street.

Electro-Pneumatic Doors

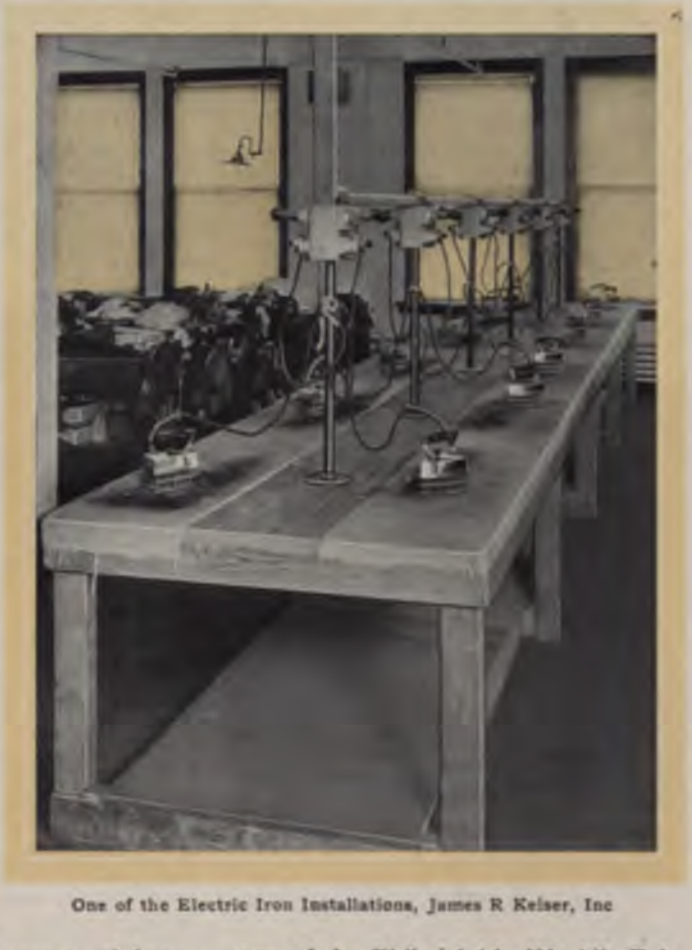
THE Library Bureau, dealers in office furnishings, 316 Broadway, have a novel installation in the shape of electro-pneumatically-operated doors. A one-and-a-half horse-power electric motor operating a compressor compresses the air in a tank to about sixty pounds pressure, which controls the doors at the office entrance. The operation of these doors is somewhat mistifying to the observer at first; upon entering a person steps upon a concealed floating platform similar to that of a scale. The weight releases valves permitting the air to operate pistons located over the doors, automatically opening them and causing them to disappear in the framework of a vestibule, each half sliding in opposite directions. The doors have been found not only a convenience, but an advertisement as well, as a visitor seldom enters without endeavoring to ascertain the method of operation.

The Ruhmer System of Television

THE following interesting article on the subject of "Television" is taken from a recent issue of the *Electrical Review and Western Electrician:*

The first "Elektrische Fernseher," built by Ernst Ruhmer, consisted of sixteen elements, each of one square millimetre in area, provided with a corresponding number of selenium cells. This apparatus was found to be so successful that a larger apparatus having twenty-five elements was built, and this has been successfully employed for transmitting pictures in the form of geometrical figures.

It is maintained that while using this as a unit and providing 400 similar groups of selenium cells any picture can be transmitted to a distance, giving a faithful reproduction at the receiving station.



One of the Electric Iron Installations, James R Keiser, Inc

On account of the excessive cost of the 10,000 selenium cells required for use in such an installation on a large scale, only a great exposition could undertake its construction.

As the telephone was the great feature of the Philadelphia World's Fair and the electric transmission of power a distance of 175 kilometers from Laufen the attraction at the Frankfort Exposition in 1891, and the use of Niagara power at Buffalo the drawing card of the Pan American Exhibition, it is held that the great feature of the "Brüsseler Weltausstellung" will be the Ruhmer photo-telegraphic apparatus, costing a million and a quarter dollars or five million marks.

The receiving apparatus of the Ruhmer "Fernseher" is provided with a storage battery of twelve volts. The transmitting apparatus consists of an electrical stereopticon which throws the design on the screen appearing in the background of the illustration, the latter being divided into twenty-five square sections with a highly sensitive selenium cell arranged behind each section.

This transmitting apparatus responds almost instantaneously to any variation in lighting to which it is exposed, and it is stated that inertia has been entirely eliminated in this mechanism.

A similar screen is utilized at the receiving station having the same number of sections. Each of these sections is connected with a section on the transmitting screen, and a highly sensitive mirror galvanometer is provided which is affected by the fluctuations of current produced by the varying intensity of light on the transmitting screen.

Electric Irons in Use. James R Keiser, Inc

By means of this television apparatus a reproduction is obtained on the receiving screen corresponding to a perforated pattern which is inserted in the electric projector or lantern, the focusing arc lamp producing a powerful light which is projected onto the transmitting screen, reproducing the pattern enlarged as inserted in the stereopticon. The light thrown on the transmitting screen affects the resistance of the selenium cells and thereby changes the amount of current flowing through the connecting wires to the sensitive mirror galvanometers of the receiving screen.

The enormous labor and expense in constructing a complete apparatus for television consisting of 10,000 elements can hardly be realized. Herr Ruhmer has designed many forms of photo-electric selenium cells and has made many inventions in the field of wireless telegraphy, wireless telephony and telephotography.

View in Yonkers Electric Light and Power Company's Display Room and Office, 14 North Broadway, Yonkers

Large Motor Installation

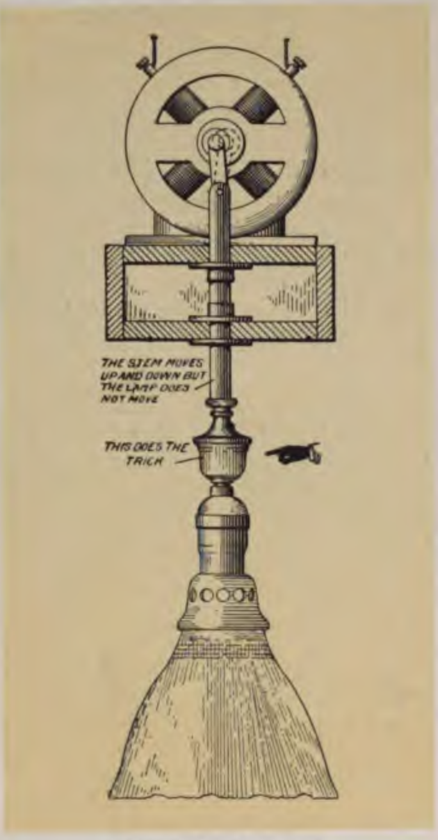
THE Union Gas & Electric Fixture Company, 383-385 West Broadway, has contracted for Edison Service to supply a 125 horse-power motor.

This Company formerly occupied a building at Fifty-third Street and the East River, and there operated a 125 horse-power steam engine.

Improved Santo Vacuum Cleaner

THE Santo Sales Company are exhibiting in their store at 335 Fifth Avenue their new model, type "R," Santo Electric Vacuum Cleaner, which is a big improvement in the manufacture of portable vacuum cleaners in the right direction.

One of the chief objections to the home use of vacuum cleaners has been the noise and vibration of the machine. The Santo has overcome the problem and at the same time does not appear to have sacrificed durability or any of the other good qualities of the Santo machine.



Testing the Tungstelet

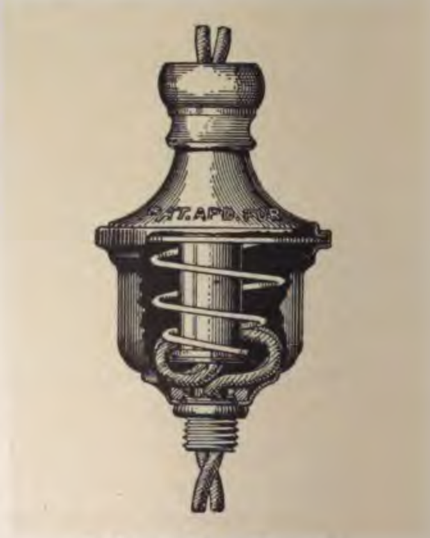
The Tungstelet

THE Tungstelet, manufactured by the Tungstelet Company, 101 Walker Street, was designed to supply the demand for a serviceable device for attaching to fixtures where tungsten lamps are used and vibration exists.

The device is so designed that the weight of the lamp socket and shade is balanced against the tension of a spring. Any vibration which reaches the plunger to which the spring is attached is absorbed by the spring. The construction is plainly shown in the accompanying illustrations.

The Tungstelet has several distinct advantages. It allows for surplus wire; provision against breakage of the spring is made by the use of a flange on the plunger; it may be used with any size shade between the 40-watt and 100-watt.

This appliance has been subjected to very severe tests, which it has successfully withstood. In order to give a clear demonstration of its ability to perform its function the Tungstelet is tested on a vibrating machine, consisting of a motor which, by means of an eccentric, causes a stem to vibrate at a high rate of speed. The Tungstelet, with the socket lamp and shade, is attached to this stem. This machine subjects the lamp to various conditions liable to be met with in service. The steady running of the motor produces a vibration which is more severe than that met with under the most trying conditions, but the lamp is unaffected, as the vibration is absorbed by the Tungstelet.

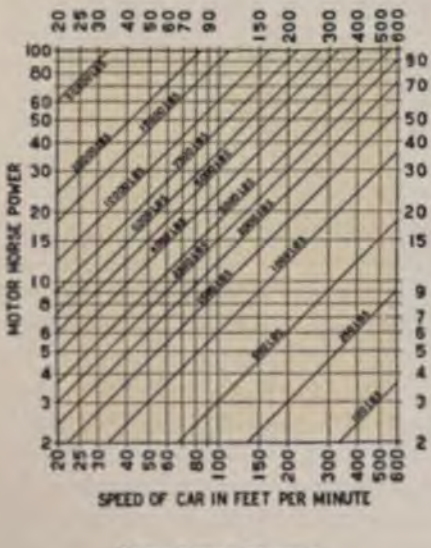


Mechanism of the Tungstelet

Horse-Power of Elevator Motors

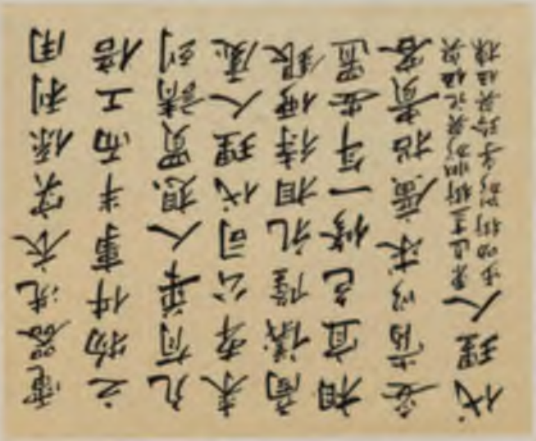
THE accompanying diagram, showing the size of electric motor required to operate elevators of various capacities and speeds, is reproduced from a publication of the Cutler-Hammer Manufacturing Company, of Milwaukee:

"The diagram is designed as a ready reference chart for determining the power required in any elevator installation. Three factors determine the horse-power of the motor that should be used, namely, the weight to be hoisted, the speed of travel and the efficiency of the elevator. In the chart the efficiency of the elevator is assumed to be fifty per cent. To determine the proper size motor to use in any case follow the diagonal line corresponding to the unbalanced load up to the point where it crosses the vertical line corresponding to the speed desired. The horizontal line at this point will indicate the horse-power of motor required.



Horse-Power Diagram

A Letter from One of Our Chinese Customers with Translation



NEW YORK EDISON CO,
124 W 42d St.

Dear Sirs:

My electric washing machine you make run by electric is very good and save me lot of money. I have it in over three months and it never stops. We get more business for we can wash quicker and cleaner. Send me man about new electric light I see in the stores.

HING KEE,
204 E 13th St.

Edison Service on Manhattan Island

IN 1909 96.75 per cent of all the new buildings erected on Manhattan Island adopted full Edison Service for light and power.

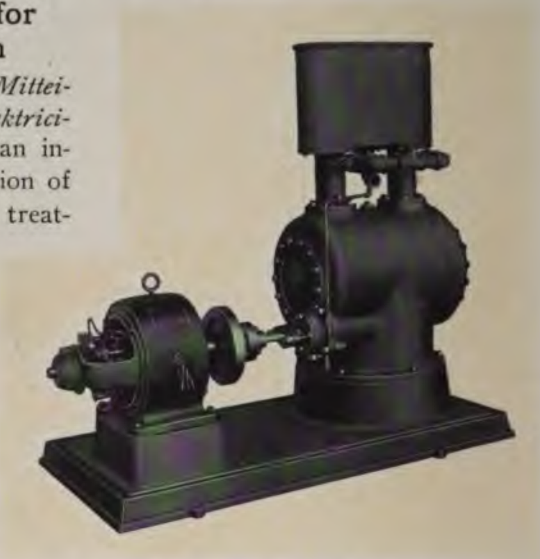
Electric Hair Dryer for Curing Rheumatism

A RECENT issue of the *Mitteilungen der Berliner Elektricitäts-Werke* contained an interesting article on the application of the electric hair dryer to the treatment of rheumatism and other ailments.

It seems that this device, slightly modified, is destined to have a more beneficial use than heretofore, namely, for applications of hot air douches for curing rheumatism, lumbago, gout, sciatica, etc. The hot air douches produced in this manner, besides being applied for the above-named diseases, have already been used to create a healing "Hyperamie" for curing boils and carbuncles.

Dogs, which frequently suffer from rheumatism, are treated with the dryers as shown in the illustration (for which we are indebted to Dr Richard Heilbrun, of Berlin) for the purpose of relieving their pain. Quite recently experiments of this nature have been made in veterinary hospitals, with other domestic animals.

Applying Heated Air to a Dog



Jones Refrigerating Machine Company's Motor-Driven Compressor

Small Electrically Operated Refrigerating Plant

FROM the introduction of the first successful large refrigerating machine to the present time there have been numerous attempts made to construct a small machine to fulfill the demands of retail butchers, restaurants, saloons and markets. Such a machine has of necessity to be largely automatic in operation and economical in its use of power.

The small machine has not, however, been so successful in its results as the larger type, owing to the fact that it requires a certain number of feet of pipe to properly expand ammonia and prevent the system frosting back to the compressor. The ordinary system requires four hundred or more feet of expansion pipe with brine near zero temperature to keep the frost from the compressor, which would be impracticable for use in a small house box.

The Jones Refrigerating Machine Company, of Elgin, Ill, have developed a system with which they are cooling a box eight feet long, five and one-half feet high and two and one-half feet wide. The plant is driven by a one-half horse-power motor (actually consuming about one-quarter horse-power) and only uses sixty inches of expansion pipe and eighteen inches of condensing pipe. The brine is maintained at zero temperature with ten pounds back pressure and with no frost visible outside or inside of the box.

The storage part of the box can be maintained at twenty degrees Fahrenheit, with a six to eight hour run in every twenty-four hours.

The Jones Company have a plant in their works which has been in daily operation for seventeen months and is charged with but one pound of ammonia.

An Interesting Meter Installation

A NEW departure in meter installation has recently been made in the new Longwoods Apartment buildings on Longwood Avenue, the Bronx.

Cabinets containing the meters for the various apartments have been placed in the public halls, exposed to view through bevelled plate glass doors.

This method of installation has proved to be a great convenience, as it places all of the meters in public view, where they can be inspected at any time. The accompanying illustration shows one of the cabinets. Mr M F Finkelstein, of 101 Walker Street, was the electrical contractor.

Meter Installation in Longwood Apartments

A small motor attached to the sewing machine relieves the fatigue caused by foot pedaling and makes sewing a pleasure.

Large Private Plant Abandoned

The Borgfeldt Building, 48-50 West Fourth Street. A large private plant has been abandoned and Edison Service adopted for 5,000 incandescent lamps and about 200 horse-power in motors

Lift Sunken Steel by Giant Magnets

WITH a gigantic magnet, manufactured in the shops of the Cutler-Hammer Manufacturing Company, of Milwaukee, steel cargoes are being rescued from the bed of the Mississippi River for the first time.

The present experiment is being made near New Orleans, where a barge load of kegged nails is being raised. A load of cotton ties sunk near Natchez, will be next taken up, while a load of woven wire, sunk near Pittsburg, will be the third task. All are property of the United States Steel Company.

The magnet used in the work is three and one-half feet in diameter, and weighs 3,000 pounds. It is dropped into the stream, the current turned on, and five or six kegs of nails raised to the lift. A derrick is employed for the purpose. The nails weigh 200 pounds to the keg, so the magnet lifts from 1,000 to 2,000 pounds each trial.

A great saving is being realized by the use of the magnet which could not be otherwise effected. Were a dredge used, kegs would be broken open and much valuable material lost. In this way, the kegs are raised intact, and the nails are uninjured, except for slight rust. Between eighty-five and ninety-five per cent of the cargo can be raised. It is valued at $45 the ton.

Motor-Operated Nailing Machine

THE Stafford Ink Company, 607 Washington St, has installed an electric nailing machine by means of which the operator is enabled to nail up four hundred and twenty cases, averaging sixteen nails per case, an hour.

The nails are placed in two iron boxes which feed into a number of pipes or troughs connecting with the hammers. The machine is operated by a two horse-power motor.

Part of the Abandoned Plant, Borgfeldt Building

Bailey Electric Victoria Phaeton

THE Bailey electric differs from other machines of this type in many details. It is provided with a wheel steering gear similar to gasoline cars, with the control lever mounted on the wheel under the hand, where its position is easily observed.

The safety appliances, preventing its starting at the wrong time and for stopping in an emergency, are complete and remarkable in simplicity.

The car has graceful outlines, is luxurious in its appointments and is provided with a seat wide enough to accommodate three people.

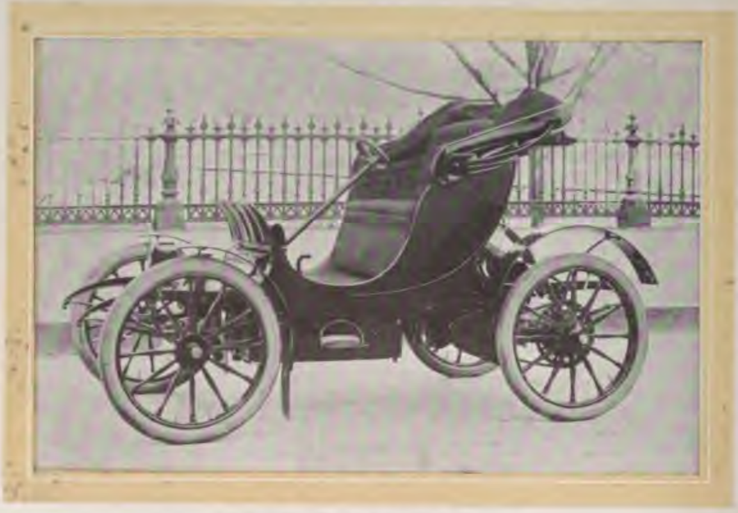
This vehicle, when equipped with Edison batteries, will run, under favorable conditions, 150 miles and will cover over one hundred miles on ordinary roads.

Messrs S R Bailey & Company, Inc, Amesbury, Mass, are the manufacturers.

General Vehicle Company's Commercial Truck for American Express Company's Service

General Vehicle Company's Electric Truck for Brewery Service

THE General Vehicle Company of Long Island City has recently delivered to the Peter Doelger's Brewery a five-ton electric truck for delivery purposes. This truck has a speed of seven miles an hour and a mileage of 135 on New York streets with one charge of the batteries.



Bailey Electric Victoria Phaeton

It's time to place orders for electric fans.

Advantages of Electric over Gasoline Vehicles

I. ECONOMY.

(*a*) OF MONEY.

1 Greater simplicity, hence fewer repairs.
2 Lower cost of insurance.

A Large Brewery Truck Made by General Vehicle Company

3 More durable than reciprocal type.
4 Less care.
5 No elaborate repair tools.
6 Small loss of power.
7 No experienced chauffeur, who must get higher wages; and small number available.
8 Freedom from insurance limitations.

(*b*) OF TIME.

1 Simplicity of adjustment.
2 No cranking.
3 Instant readiness.
4 Develop power despite conditions of weather, etc.
5 Less time in repair shop.

II. OTHER ADVANTAGES.

1 Simplicity of construction.
2 Simplicity of operation.
3 Danger of fire or explosion eliminated. Hence wider field.

4 Universality of electric power.
5 No freezing.
6 No tanks to leak.
7 Favorable legislation in Germany.
8 Electric permitted on docks and terminals where no gasoline.
9 Legislation in Germany and London adverse to gasoline. Same here.

III. SENTIMENTAL REASONS.

1 No noise.
2 No odor.
3 Advertising feature.
4 Does not spot liveries with grease, or make goods odoriferous.

Metropolitan Roller Rink, Broadway and Fifty-second Street. An excellent example of Tungsten lighting in a large building

Would Ban Smoking Autos

IN order to impress upon Dr E J Lederle, the Health Commissioner, with the increasing nuisance created by smoking automobiles in the streets of this city, Col Edward S Cornell, secretary of the National Highways Protective Association, sent a number of photographs recently to the Health Department, which were taken recently by photographers employed by the society. In an interview at the offices of the society, 6 West Twenty-eighth Street, with a *Times* reporter, Col Cornell said:

"The smoke nuisance caused by automobiles in New York has grown to such an extent that the ordinary pedestrian or person who takes a drive in a horsed carriage feels as if he was continually circumnavigating a kerosene factory. On February 2d of the present year, I drew up a petition addressed to the Health Commissioner with the object of drawing his attention to the nuisance and urging the necessity of his taking some action in the matter. Under Section 1,171 of the New York City Charter, the municipal authorities have authority to pass an ordinance to remove any nuisance that has been made a subject of complaint by the Health Department.

"I waited for a month," Col Cornell went on to say, "but no notice was taken apparently of the petition, and recently a number of photographers were sent out to take snapshots on Fifth Avenue, Broadway and Madison Square, showing the various automobiles smoking up like immature volcanoes."

In some of the pictures the smoke in the streets was so dense that it was almost impossible to discern the cars. A photograph of two smoking automobiles on opposite sides of the roadway in Madison Avenue gave the effect of the city being enveloped in a dense fog. One car in Madison Square, outside the Metropolitan Life Building, was emitting huge black clouds of smoke like a torpedo destroyer going at full speed. Other pictures were taken of cars passing along the streets leaving a column of black petroleum smoke in their rear like the wake of a liner. In all twenty-five photographs were sent yesterday to the Health Department for Dr Lederle's inspection.

When asked if the National Highways Protective Association intended to place the matter before the Legislature in the event of the Health Commissioner neglecting to take means to check the smoke nuisance, the secretary said that it was in his opinion a matter for the municipal authorities to deal with rather than the State.—*New York Times.*

The Selection of Motors

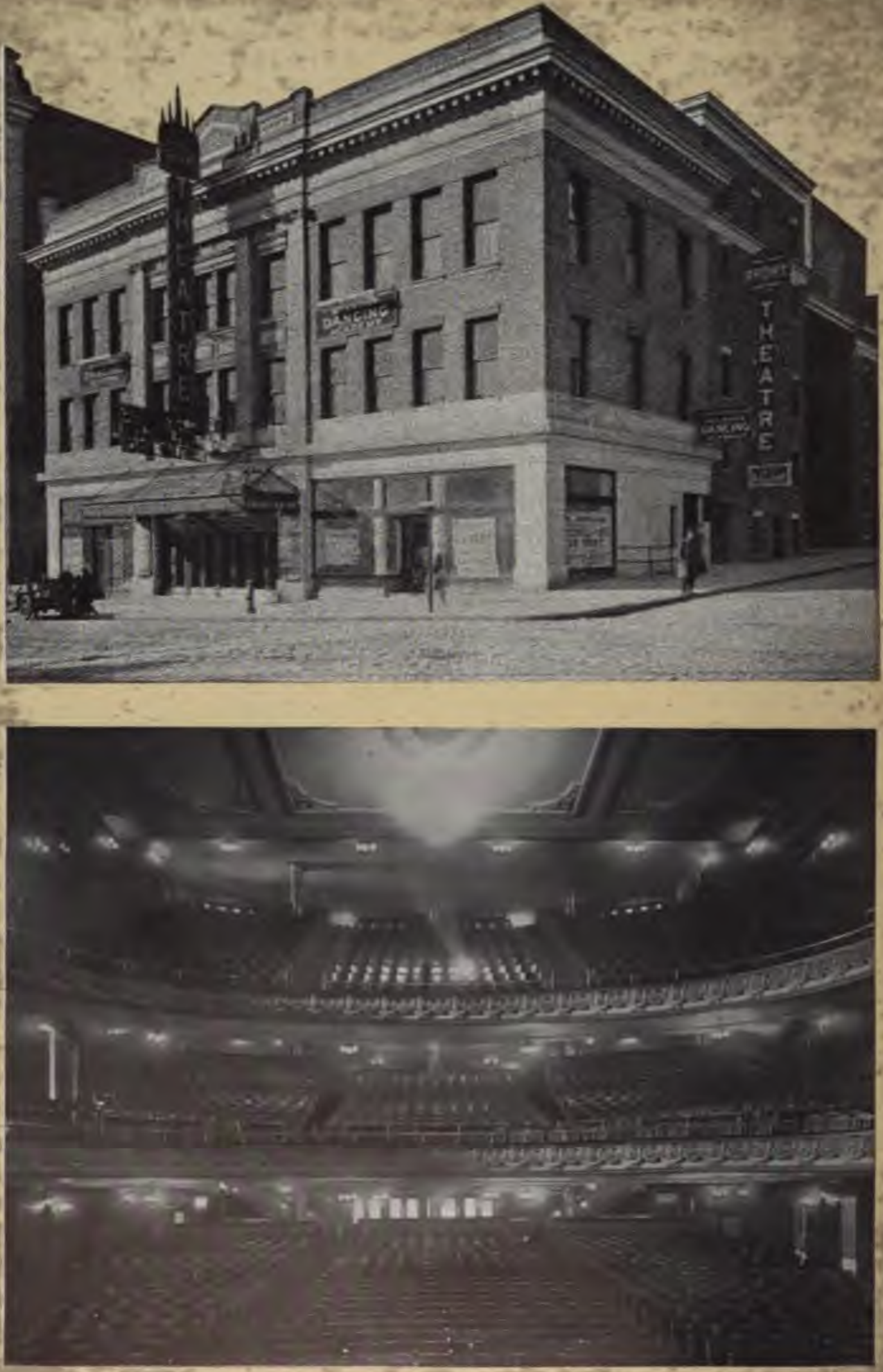
WHEN adopting electric drive great care should be exercised in the selection of the proper type of motor for each particular application. Much trouble will arise if a motor with improper characteristics is chosen for given work. Obviously a series-wound motor would be entirely unsuitable for driving a lathe or boring mill, as any variation in the depth of cut or irregularities in the contour of the work being machined would cause wide changes in the motor's speed, with probably disastrous results to the machine.

Likewise a shunt- or a compound-wound motor would be entirely unsuitable for driving cranes or hoists. It is also important to select a motor having a rating in horse-power approximate to the required driving power, and one whose speed is as nearly that required as possible.

Any unsatisfactory operation of motors may, in almost all cases, be traced to disregarding proper characteristics when selecting, and to overloading.

Fire hazards are reduced by the elimination of a private plant with its high-pressure steam boilers.

A small electric pump in the basement of apartment buildings will insure constant water pressure regardless of the pressure of the city supply.



Exterior and Interior Views of the Bronx Theatre, which was described in a previous issue of The Monthly

The Operation of Electric Motors

BEFORE attempting to start a shunt or compound-wound motor, test out the field circuit to see that it is closed. This may be accomplished as follows:

Remove the wire at the starting box from the terminal marked "Arm," and carefully insulate the end. Then close the main switch and bring the starting lever up to the running position and note whether the release magnet holds the lever. This shows whether or not the circuit is complete, since the magnet is in series with the field winding. Leaving the starting box in the above position go to the motor and, with a pair of pliers or a piece of iron, note whether the poles give a magnetic pull. In performing this operation be very careful not to touch the field terminal, thus grounding or short-circuiting the field winding. As a final or third test, slowly open the main switch, and if an arc results the circuit is complete. These tests should always be made before attempting to start up a motor the first time.

When these tests have been completed see that the main switch is open and the starting lever at the off position, thus opening the circuit; then replace the terminal on the startlng box.

In case the speed of a compound-wound motor is above normal, the series field is probably opposing the shunt field. If sufficient starting resistance is at hand, the motor should be tried as a shunt and as a series motor. In the latter case do not attempt to bring the motor up to speed, but allow it to turn a few revolutions to see that it turns in the same direction that it does when running as a shunt motor. These tests should be made with no load on the motor, and if found all right permanent connections can be made and the motor operated.

When a motor is put into operation always be sure that the connections are tight and the brushes in the proper position, and never leave the starting-box lever in an intermediate position. See that the oil wells are properly filled, and when first starting rub the commutator occasionally with a cloth having a few drops of oil on it until the commutator obtains a dark gloss.

If sparking occurs move the brushes backward and forward until a point is found where no sparking occurs under normal load. It is advisable to change oil in the bearings two or three times in the first few days, after that the oil may be left in about three months, adding enough occasionally to make up for losses. The machine should be watched for the first few days to see that the brushes do not grind and that the oil rings revolve freely.

Keep the machine clean, dry and see that no bolts, nuts, screws, etc, are left around, as these may be drawn into the motor when its field windings are excited and the machine running.

Applications of Electric Heating

SECTION I

ACCOUNTANTS.

Sealing-wax heaters.

ADDRESSING AND MAILING AGENCIES.

Sealing-wax heaters.
Glue pot heaters.

AMUSEMENT PARKS.

Radiators.
Cigar lighters.

APARTMENT HOUSES.

Full line of cooking apparatus.
Smoothing irons.
Sterilizers.
Curling-iron heaters.
Radiators.
Heating pads.
Foot warmers.

ASSAYERS AND CHEMISTS.

Soldering irons.
Sterilizers.
Water heaters.
Annealing furnaces.
Enameling furnaces.
Vulcanizers.

AUTOMOBILE AND BICYCLE SHOPS.

Welders.
Soldering irons.
Branding irons.
Enameling furnaces.
Armature baking furnaces.
Tire vulcanizers.

BAKERS.

Ovens.
Waffle irons.
Water heaters.
Frying kettles.
Radiators.

BANKS.

Sealing-wax heaters.
Branding irons.
Radiators.

BARBER SHOPS.

Curling-iron heaters.
Hot-water urns.
Instantaneous-flow water heaters.
Cigar lighters.
Radiators.

BILLIARD AND POOL ROOMS.

Glue pots.
Cigar lighters.
Radiators.

BLACKSMITHS AND WAGON MAKERS.

Glue pots.
Branding irons.
Soldering irons.
Welders.
Forges.

BLUE PRINTERS.

Flatirons.
Electrically heated drying rolls.

BOAT AND SHIP BUILDERS.

Glue pots.
Soldering irons.
Welders.

BOILER MAKERS.

Welders.

BOOKBINDING.

Glue pots.
Finishing irons.
Stamping and embossing presses.
Matrix drying tables.
Lettering and branding irons.

BOOT AND SHOE MANUFACTURERS.

Glue pots.
Turn and welt machines.
Truing tools.
Shoe irons.
Branding irons.

BREWERIES AND BOTTLING WORKS.

Glue and resin heaters.
Branding irons.
Radiators for drying casks.

CANNING WORKS.

Soldering irons.
Branding irons.
Sealing-wax heaters.
Solder pots.

CARPENTERS AND WOOD WORKERS.

Glue pots.
Branding irons.
Braziers.

CHURCHES

Radiators and foot warmers.
Kitchen outfit.

CIGAR STORES.

Cigar lighters.
Radiators.

CLEANING AND DYEING WORKS.

Tailors' and laundry irons.
Stoves.
Water heaters.

CLOAK AND SUIT MANUFACTURERS.

Tailors' and laundry irons.

COFFEE AND TEA MERCHANTS.

Coffee roasters.
Coffee percolators.
Water urns.
Stoves.

COMMISSION MERCHANTS AND MARKETS.

Radiators.

CONFECTIONERS AND CANDY MANUFACTURERS.

Ovens.
Corn poppers.
Hot plates.
Water urns.
Cigar lighters.
Stoves.

CONTRACTORS AND BUILDERS.

Glue pots.
Soldering irons.
Branding irons.

DAIRIES AND CREAMERIES.

Water boilers.
Sterilizers.
Stoves.
Pasteurizers.

DENTISTS.

Dental furnaces.
Vulcanizers.
Water heaters.
Sterilizers and cauterizers.
Radiators

DEPARTMENT STORES.

Kitchenettes for demonstration.
Radiators.
Irons.
Cigar lighters.
Pyrograph needles.
Stoves.

DRUG STORES.

Cigar lighters.
Hot-water urns.
Sterilizers.
Radiators.
Cauterizers.

DRY GOODS AND MILLINERY.

Curling-iron heaters.
Flatirons.
Radiators.

ELECTROTYPERS.

Melting pots.
Water urns.
Soldering irons.
Solder pots.
Heating furnaces.

ENGRAVERS.

Soldering irons.
Stylus.
Solder pots.

FACTORIES.

Glue pots.
Soldering and branding irons.
Solder pots.
Welding.

FARMERS.

Sterilizers.
Food warmers.
Incubators.
Branding irons.

FOUNDRIES.

Soldering irons.
Solder pots.
Forges.
Welders.
Small core ovens.

GAS AND STEAM FITTING.

Soldering irons.
Solder pots.
Pipe-thawing apparatus.

GRAIN ELEVATORS.

Grain-drying ovens.

HAIR DRESSING

Curling-iron heaters.
Hot-air hair dryers.
Hot-water urns.
Radiators.
Foot warmers.

HARNESS AND SADDLERY SHOP.

Wax heaters.
Polishers.
Branding irons.

HAT STORES AND HAT MANUFACTURERS

Hat irons.

These are only a few of the many applications. Some more will appear in another issue.

Electric Drive in Textile Mills

IN a paper recently presented before the Calcutta Section of the institution of Mechanical Engineers, it was pointed out that, as power accounts for only about 2.5 per cent of the manufacturing costs in a textile mill, an increase of from three to four per cent in production which results from steadier electric drive would practically wipe out the total power cost of the mill.

Large Building Contract

THE New York Edison Company has recently closed a contract with the One Hundred and Thirteenth Street & Broadway Company to furnish current for the new apartment house in course of erection at the corner of Broadway and 113th Street. This is to be a twelve-story building, 175 by 125 feet. The electrical equipment will consist of 3,500 incandescent lamps and nearly 100 horsepower in motors.

The circulation of an electric sign is equal to the population of the city, and it leaves a lasting impression on the minds of passers-by.

Use Edison Service for light, power and some heat.

Night View of New York as Seen from Brooklyn Heights

The Edison Monthly

May 1910

VOLUME II NUMBER 12

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Copyright, 1910, by The New York Edison Company

Editorial

The Edison Monthly
Published by
The New York Edison Company
General Offices
55 Duane Street New York City

President
Anthony N Brady, 54 Wall Street
Treasurer
Joseph Williams, 55 Duane Street
Secretary
Lewis B Gawtry, 4 Irving Place

"Milliners Wanted." This sign appeared in the display window of one of the prominent Fifth Avenue milliners a day or two after the inauguration of the special window illumination. It is suggestive of the effectiveness of window advertising.

The proprietor of another of these specially illuminated Fifth Avenue establishments also reports an immediate business acceleration.

◆

Promenading on Fifth Avenue has increased steadily since the inauguration of the new window illumination. Previously perhaps two hundred or three hundred persons passed through this block in the most crowded hour of the evening. During the display between fifteen hundred and two thousand persons have been noted passing through the block, each stopping and making a careful study of some of the goods displayed in the illuminated shop windows.

◆

Electricity is truly the modern servant. Electric irons, electric pneumatic cleaners and electric washing machines. There are a great many other incidental uses, but these cover the field of nerve and strength-exhausting work that every home requires.

◆

The electric iron radiates the heat where it is wanted, and nowhere else, and therefore permits one to work in lower and more comfortable temperature than can be obtained where hot laundry stoves with a large proportion of highly heated surface are exposed to the air of the room. Then there is the tiresome all day walking back and forth between the ironing table and the stove.

Not so with the electric iron, for the heat is always available at any desired temperature; the work is accomplished with the minimum of physical effort and at much higher and more comfortable speed than would be in any other way practical.

The portable pneumatic cleaner is the next step in the elimination of difficult home labor. Consider the difference between sweeping a carpet with the usual broom or carpet sweeper and rubbing across carpet or rug the light suction cleaner.

◆

And this not only does the work without effort on the part of the holder, but does it thoroughly, taking out all the dirt to the last degree and leaving no unsanitary dust to be breathed into the lungs or to find another resting place, only to be again dusted off, and yet another resting place and another dusting in the usual endless process of mere displacement of dust and dirt in the homes.

In some ways the third is the most important of all. We refer to the electric automatic washing machine. It can be placed in any kitchen and the clothes thoroughly washed much better than by hand rubbing and passed through a wringer which forces out the last degree of moisture without the expenditure of any more effort than that required to turn the controlling electric switch.

◆

There is no dirt or confusion. Any lady doing her own work can use this washer without the slightest degree of inconvenience or effort in excess of that which she gladly gives in any of her household duties.

Not only do these devices solve the servant problem, but, if need be, they eliminate the servant. The cost of operating any or all is surprisingly little. They and hundreds of others are on exhibition at our showroom, where the public is always warmly welcome.

◆

It is generally admitted that the most active and effective short distance advertisers are the circus people. In this Barnum & Bailey takes the lead. To them advertising must be an art in which they have forgotten more than many people know.

They go newly into a community, within a few days stir up every boy and girl, man and woman, on the circus, and carry away pockets lined with ducats. The work must be quick and, what is more, it must be effective.

◆

Notice that this great organization has now adopted electric advertising in New York. Notice, too, that it must be installed for very short use. Profitable?—perhaps the most profitable they undertake.

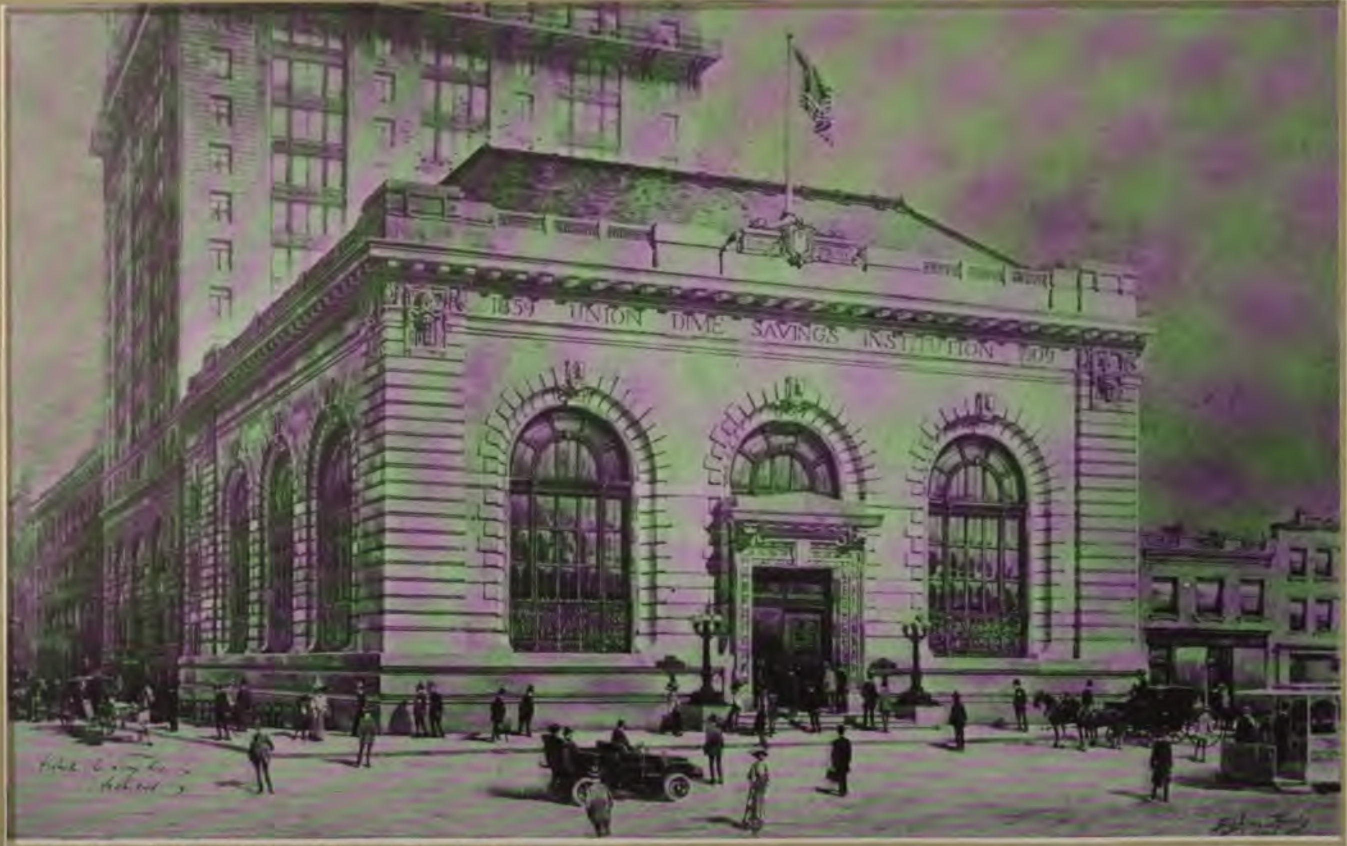
Others seem to think so. As the Barnum & Bailey Show goes out Buffalo Bill's Wild West comes in. Here is another of the world's great advertisers. The same kind of advertising is to be used through the stay of this show in New York. As we go to press word reaches us to this effect. We owe Mr Buffalo Bill a vote of thanks for continuing this nightly display.

◆

As usual, the O J Gude Company deserves great credit—all their work does. That horse and its rider, just north of Forty-second Street, is realistic, artistic, strong, full of action. The illusion is perfect. It is as though one were sitting at the ring side.

◆

Pyrography is a very popular occupation even when gasoline, with its fumes and disagreeable odor, has to be used to heat the stylus; but the work will become still more fascinating if the electric stylus is used, as it can be kept at a uniform heat, so that the whole attention of the artist can be given to the drawing. The work is both easier and more agreeable, and there is no danger of explosion.



Photograph Copyright, 1910, by the Architect, Mr Alfred H Taylor

Union Dime Savings Bank, Sixth Avenue and Fortieth Street

The Union Dime Savings Bank

THE Union Dime Savings Bank has recently moved into its new building, situated on the northwest corner of Sixth Avenue and Fortieth Street, New York City.

The new structure, with the increased working and public space, offers many utilitarian advantages, such as an abundance of direct diffused light, a complete modern electrically operated ventilating and heating system, improved arrangements for filing, opportunities for facile communication between the officers and clerks' cages, ample space for rapid formation and progress of lines at various wickets, additional public desks and incidental conveniences, security and protection of money vaults, and various other latest mechanical appliances connected with the operation of a thoroughly modern bank, which should add greatly to the working efficiency of the organization, and afford unusual attraction and advantage to the general public.

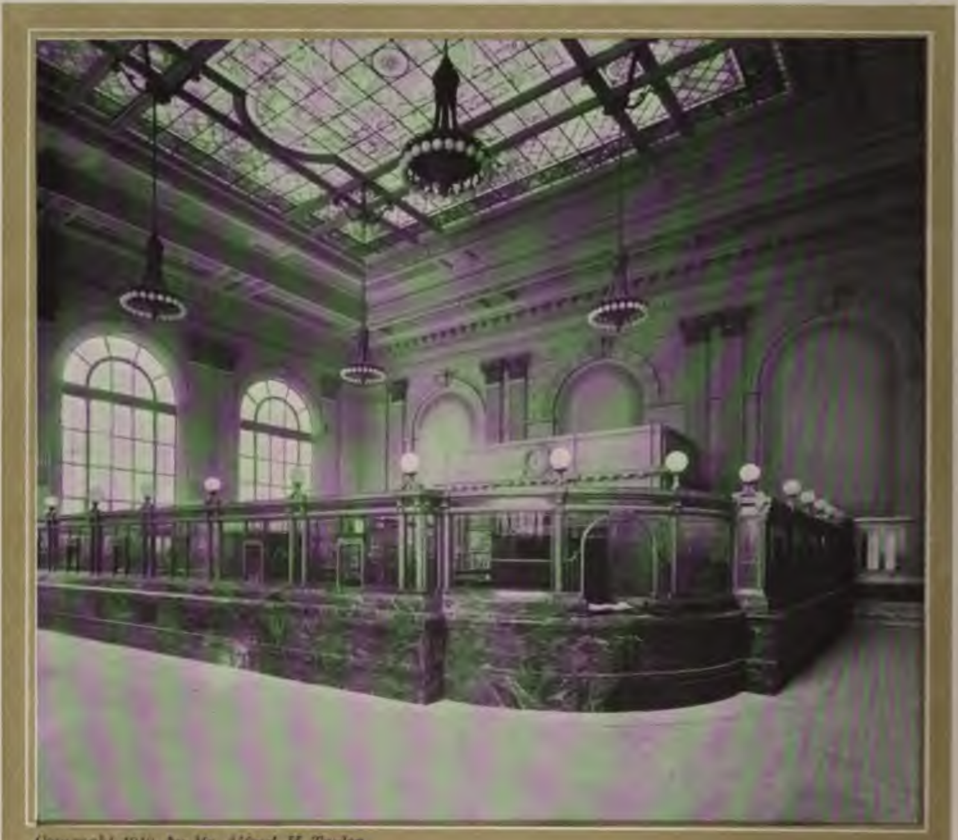
The main entrance door frame and pediment of heavily carved pink granite rises from the base of the same material and fills the lower part of the central arch, containing the paneled bronze sliding doors, transom grilles and frame, and flanked on each side entrance steps by two heavy bronze electroliers.

The entablature and richly paneled, beamed and soffited ceiling are of ornamental plaster, tinted and enriched with gold, and framed in at center with a large field of delicately tinted leaded glass, used for diffusing light from main roof skylight to center of clerking cages below. There is an extension of the vacuum cleaning outfit to clean this dome light from the upper side, so that this important detail can be attended to, and the danger of breaking the glass reduced to a minimum.

Cages of interlacing bronze mesh divide off the various tellers, bookkeepers and clerks, and are fitted with the latest accounting machines, filing devices, money drawers, counters, desks, cabinets, telephones, tel-autograph and various personal conveniences of the individual tellers.

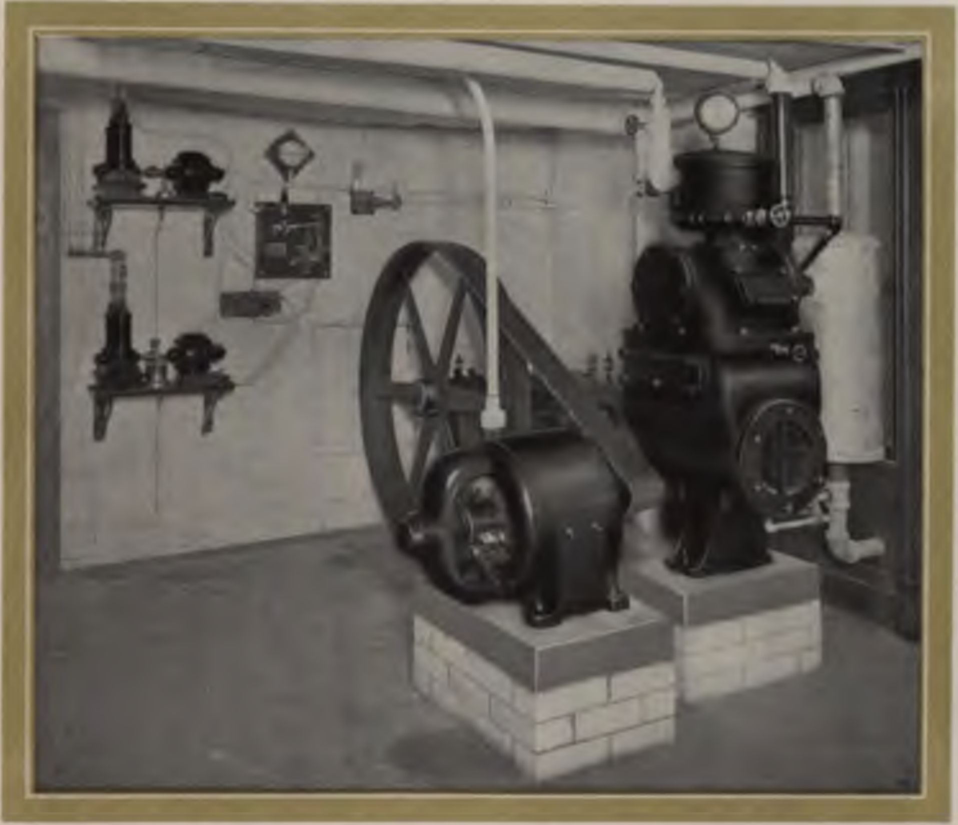
The officers' enclosures are reached by three steps at rear and have command of the entire working organization, vault doors, public entries, clerks' passages, stairs to basement and private official rooms in extension. Mindful of a recent daring robbery in broad daylight, the doors from the public space and connecting passage are controlled by secret electric buttons at the secretary's desk, insuring privacy to the outer rooms.

This vault is divided into two parts for money and securities and is fireproof and burglar-proof in the strictest sense. In addition the exterior is covered with electric protective panels, which presented several difficulties which had to be overcome, to avoid making the monumental eyesore into which the typical raw mahogany paneled electric protected cabinet usually develops. The bank officials refused to consider placing the protection on the inside, as is sometimes done, on account of the alarm not indicating until a considerable amount of damage has been accomplished, so it was placed outside and screened by a false facing of bronze pilasters and frames, supporting large matched Paonazzo marble panels with detachable corner pieces of bronze to allow easy removal of any of the protective paneling in case of repairs being needed.


Copyright 1910, by Mr Alfred H Taylor

Interior Union Dime Savings Bank

A very complete system of heating and ventilation has been installed throughout the building, consisting of a direct intake of fresh air by ducts from the roof where the air is filtered of all dust by fine wire mesh screens, which in turn are kept open by a vacuum cleaning system; the air then passes through air chambers, where it is given the proper temperature, and is taken up by a fan and forced through a large duct to the various outlets under the large windows and arches. In the floor at the base of the vault is a suction exhaust to insure constant circulation at or about the breathing line.



Motor-driven Vacuum Cleaner in the foreground. Automatic Regulators for Ventilating System on the wall. Union Dime Savings Bank

The whole system is under thermostat control and is self-regulated. As all the large windows have double sash the influence of outside temperature on the interior is practically nil, enabling the air to be cooled in summer as well as heated in winter. One quite serious problem which was solved by the double outside windows previously referred to was the prevention of the terrific rumble of the elevated railroad trains being heard in the building.

The architect was Mr Alfred H Taylor; the consulting engineers, Messrs William J Baldwin and Ralph C Taggart. Messrs Gillis & Geoghegan installed the heating and ventilating apparatus. The electrical installation was placed by Messrs Peet & Powers.

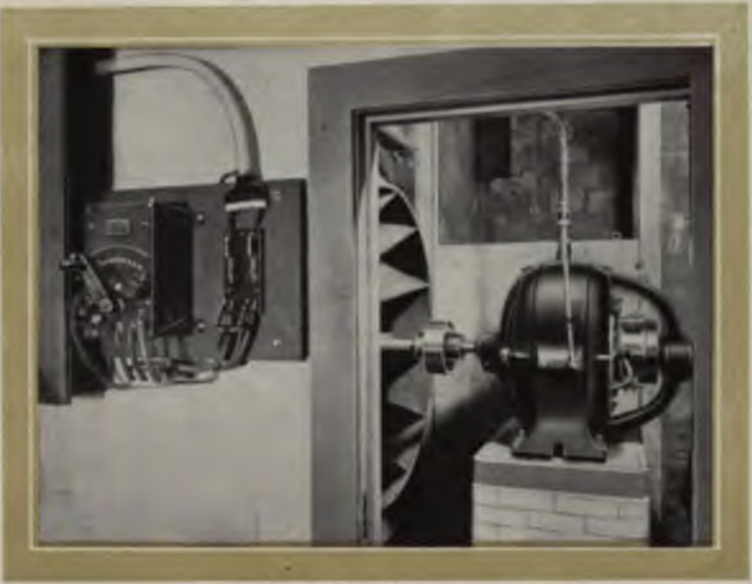
The Care and Operation of Electric Motors

WITH belted machines see that the armature oscillates in its bearings while running under load, as this will greatly lengthen the life of both the commutator and the bearings.

Precaution should be taken never to break a field circuit suddenly, as the inductive discharge voltage is always many times higher than the operating voltage, and may puncture the field insulation. Further, do not open a switch on a circuit carrying a large amount of current, but trip the circuit breaker first, then open the main switch. See that all switches, circuit breakers, etc, are open when the motor is not in operation, and always close the circuit breaker first, then close the switch.

Care should be taken in starting a motor that the handle of the starting box is not rotated too fast. Standard starting boxes for motors up to twenty horse-power are designed to start the motor in not less than fifteen seconds, with approximately fifty per cent over full-load current. For motors above twenty horse-power and up to fifty horse-power thirty seconds should be allowed for starting with fifty per cent over full-load current, and for motors above fifty horse-power and up to 100

Motor-driven Fan for Ventilating System, Union Dime Savings Bank



One of the Smaller Ventilating Fans, Union Dime Savings Bank

horse-power forty-five seconds should be allowed. Where it is possible to do so, motors should be started up somewhat more slowly than the above, as by so doing the current drawn from the line will be kept down to full-load current or below. If the motor is started more rapidly than is indicated above, flashing at the brushes may occur.

In stopping a motor, first open the circuit breaker or switch. This will cut in the resistance of the automatic stopping and starting rheostat. Never attempt to stop a motor by forcibly pulling open the starting rheostat. Disregard of these instructions may burn out the field coils. If the brushes have been properly adjusted they should not be moved when stopping or starting. The best position for the brushes is that which gives the best commutation at normal voltage for all loads. In no case should the brushes be set so far from the neutral point as to cause dangerous sparking at no load. Motors which are to be run in both directions under load should have the brushes set on the no-load neutral point.

The ends of all brushes should be fitted to the commutator so that they make contact over the whole surface. This can be done by putting each brush in its holder and grinding it with a piece of sandpaper placed between the brush and the commutator until it fits the curvature of the commutator surface. If the brushes are copper-plated their edges should be slightly beveled so that the copper does not come in contact with the commutator.

Armatures should be protected from both mechanical and electrical injury. The latter will be prevented by carefully following the instructions given in regard to starting and stopping the machine. The former will be prevented by locating the machine, as previously advised, in a clean place of even and moderate temperature. Moisture weakens insulation of coils and may cause them to become grounded on the frame, especially if the frame is not insulated from the ground.

Edison Service on Fourth Avenue

Architects, Messrs Clinton & Russell *Builders, Thompson Starrett Company*

The Hewitt-Bryce Building, Fourth Avenue and Twenty-eighth Street. Edison Service has been adopted for 15,000 incandescent lamps and more than 1,000 horse-power in motors

The commutator is an important part of a motor and requires careful and intelligent attention. Wherever possible the entire care of the commutator and brushes should be assigned to a competent man who can be held responsible for their proper attention.

To keep a commutator clean, it will ordinarily require only a daily wiping off with a piece of canvas. Providing this is done regularly so as to keep the commutator surface and end free from dirt and oil, the commutator will, in the majority of cases, require no other attention.

In service the ideal appearance of a commutator is a polished surface of dark brown color. Sandpaper, sandstone, or emery cloth should never be used on a commutator which is taking on a polish and shows no sign of roughness. Commutators which do not take on a polish and show signs of roughness should be smoothed off with a piece of sandpaper, and if quite rough, a piece of sandstone may be used.

Flat spots sometimes occur on commutators. They are usually caused by excessive wear, by too much end play, by a loose commutator, a bad belt splice, or by a flash produced by a short circuit on the line. When the commutator becomes out of true it should be turned down.

A small amount of lubricant may be applied to the commutator. A lump of paraffin rubbed across the face once a day is sufficient. Lubricant should always be applied sparingly and never in sufficient quantities to collect on the surface and about the brushes and leave them in a gummy condition. Excessive noise from the brushes may frequently be remedied by the application of a small amount of lubricant.

A commutator bar which projects above the others may be detected by a jumping motion of the brush holder spring, by a pencil point held on the commutating surface, and in some cases by a short intermittent spark at the brushes. If the commutator is found to have a high bar, the armature should be removed and the commutator repaired.

For motors using oil and waste or grease as a lubricant, the following suggestions should be observed:

A high grade of wool waste should be used, as cotton or poor grades of wool waste become soggy and will not retain their position against the shaft. The waste must be thoroughly saturated with oil, and should be immersed for at least forty-eight hours and then allowed to drip on a rack for ten or twelve hours after using. If there is too much free oil it will be forced out into the drip pockets when the waste is packed in the bearings, and will accumulate on the equipment or may worm into the motor.

In general, a good quality of car journal oil should be used. The flow of oil is affected by the temperature, therefore a heavier grade should be used in summer, and for motors operating in warm places, than for motors operating in cooler seasons and locations. In packing the bearings care should be taken to see that the waste fills the entire pocket and fits closely against the shaft, but it should not be forced too tightly, as the surplus oil will thereby be squeezed out.

If the motor is thoroughly over-

Part of the Interior of Messrs Hirsch & Cohen's Establishment, 37 West Twenty-sixth Street. This firm is now using twenty-two electric irons and claim that they can accomplish from twenty to forty per cent more work with them

hauled at any time it is advisable to repack the bearings or if they should run hot it is better to change the waste at once, as it is easily glazed over by particles of babbitt ground off the hot bearings. The frequency with which oil is added depends upon the local conditions, and is best determined by experience, but it is better to use too much than too little.

As bearings lubricated with grease require more attention than those lubricated with oil, the grease should be kept clean and grease pockets kept well filled. In filling the grease cups it is important to have all the parts adjacent to the cover free from dirt or grit, to prevent these from getting into the grease and spoiling the bearings. Inspections should be made at regular intervals, even if the bearings are running satisfactorily.

One of the Ironing Tables Showing Electric Irons. Messrs Hirsch & Cohen

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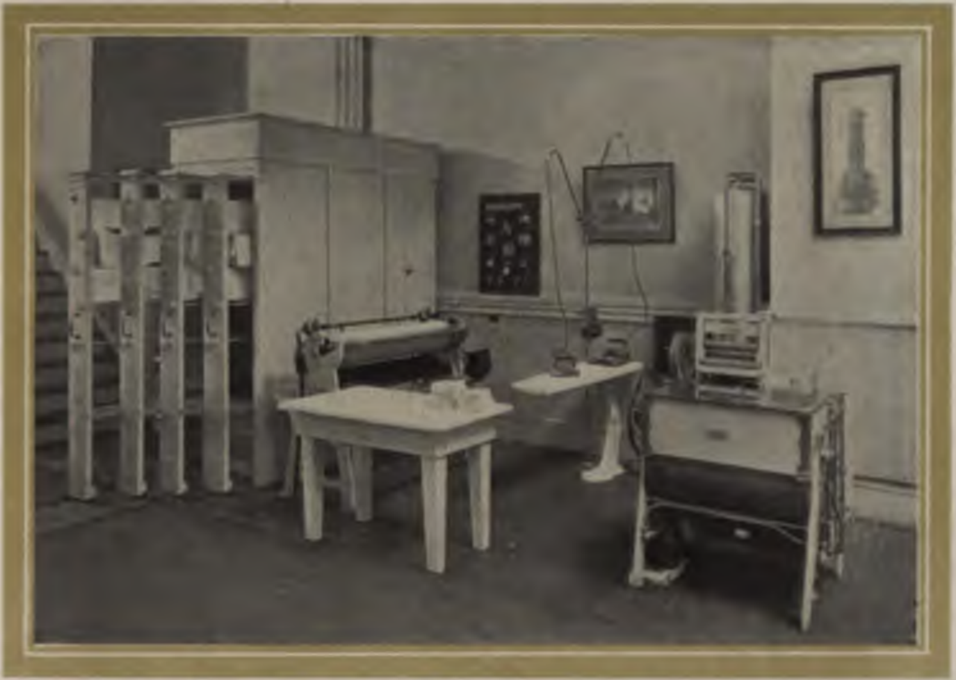
Electrically heated irons can be used in any room.

Electric Laundry

THE illustration shows a modern electric laundry in the display rooms of The New York Edison Company, 124 West Forty-second street, consisting of a combined washer and wringer, electric ironer and ironing table with electric irons and a Simplex Electric Water Heater.



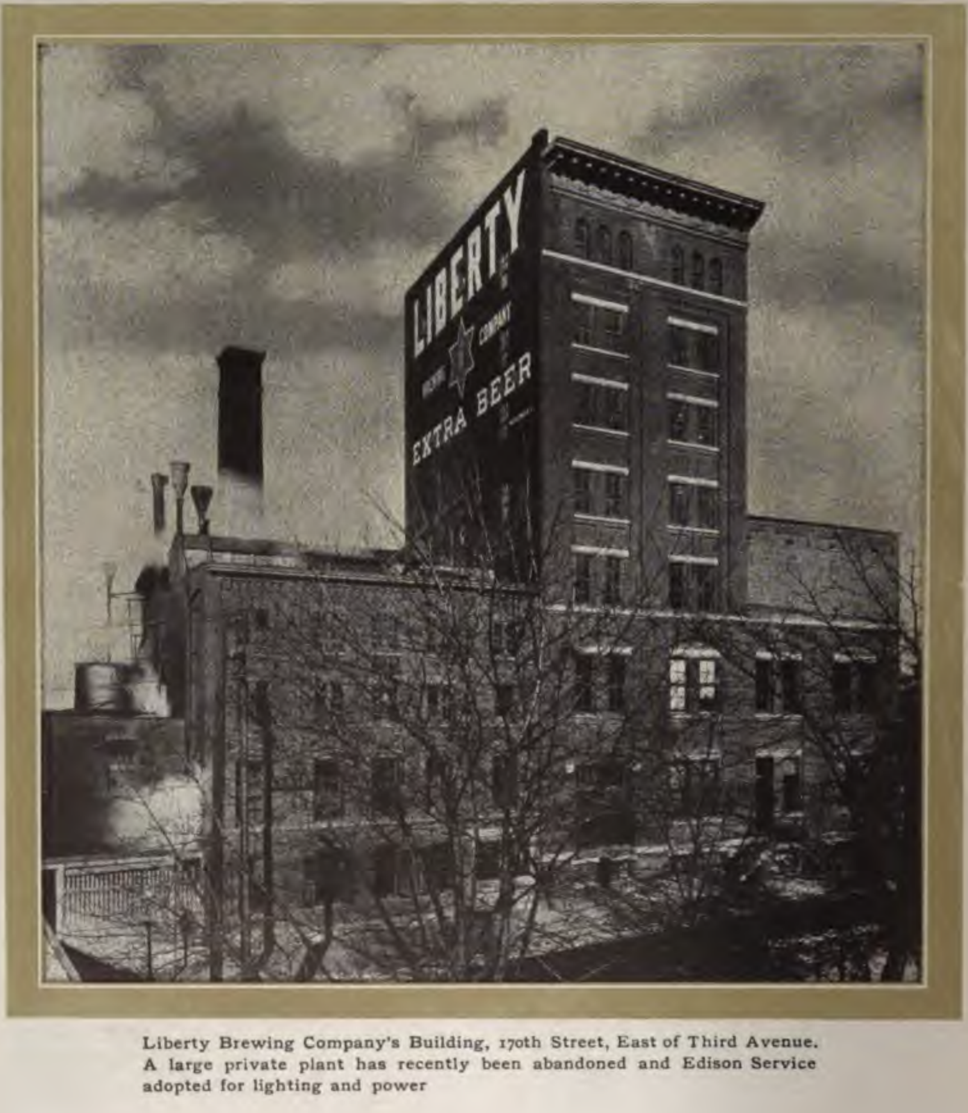
Complete Electric Laundry in the Display Room of The New York Edison Company, 124 West Forty-second Street

The Chicago Domestic Washer and Triple Roll Wringer used in this laundry has an outer casing made of planished copper, tin-lined, with interior revolving reverse action cylinder of hard maple strips perforated and held rigid by bronze hoops and furnished with bronze catches. The tub is supplied with a patent supply, drain and overflow ready for plumbing connections.

Cloths may be run through the lower set of wringer rollers for rinsing or bluing and back through the upper set of rollers on to the copper cover of the washer for assorting.

The "Chicago" dryer is electrically heated and is equipped with the Chicago-Francis patent ventilating system by means of which a constant circulation of air is maintained in the drying cabinet at all times, with the result that the cloths are dried with the utmost rapidity and are fresh, pure and sweet, as if dried in the open air. The Chicago Simplex Ironer has a 48-inch roll electrically heated with three heats.

Edison Service Succeeds A Large Private Plant



Liberty Brewing Company's Building, 170th Street, East of Third Avenue. A large private plant has recently been abandoned and Edison Service adopted for lighting and power

New Power Contract

THE New York Edison Company has closed a contract with Messrs Milligan & Higgins, 222 Front Street, for 150-horse-power and 100 incandescent.

This firm used Edison Service several years ago, but abandoned it and put in a private plant. Recently a detailed analysis of its cost of operation was made, showing that it was greater than the former Edison costs.

An electric fan in your bedroom will insure a comfortable sleep on hot nights and one in the dining-room will keep the air pleasant and fresh.

Switchboard of the Liberty Brewing Company's Abandoned Plant

Labor-Saving Device

MESSRS WALKER & HEISLER, 9-11 East Sixteenth Street, have installed a Singer carpet sewing machine, thirty-seven and a half feet long, operated by a 2-horse-power motor. This machine sews seven and a half yards of carpet in one minute and requires but one operator to do the work which formerly required five men.

An electric iron saves many steps and much discomfort from heat.

Burning of China

IT will undoubtedly be of interest to artists who decorate China that electric kilns reach the highest measure of perfection on account of the fine heat regulation.

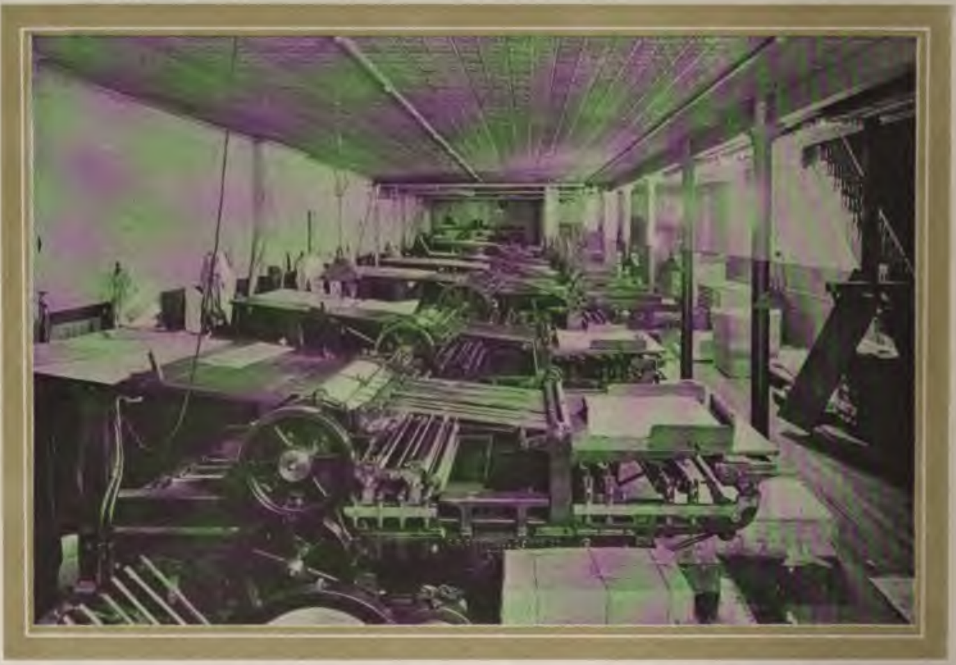
Edison Service for light, power and heat.

Electric motor drive permits machines to be placed in a position for the logical sequence of work so that there is no unnecessary handling of material.

The Willett Press

AS an example of a modern high-grade printing and publishing establishment using electricity exclusively for light and power, The Willett Press, 5 West Twentieth Street, offers an excellent illustration. Its commodious five-story building is equipped from top to bottom with the most modern machinery, individually driven by electric motors, for executing the highest grade of printing, binding, and, in fact, everything connected with the printing art. It is here that twenty-five thousand copies of THE EDISON MONTHLY are published each month, together with many other noteworthy publications.

The first floor is devoted to the press room, where there are seven large cylinder presses, each individually driven by an electric motor. The second floor is occupied by the offices and shipping department.

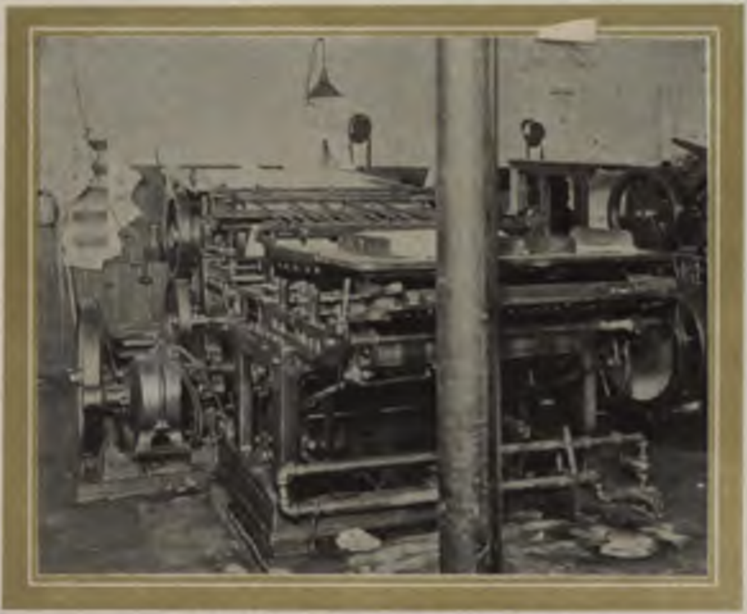


Pressroom, The Willett Press, 5 West Twentieth Street. The absence of overhead shafting and belting is at once noticeable

The cutting and binding department is located on the third floor, where the equipment consists of Dexter folders, Seybold cutters and

Boston stitchers, all driven by electric motors.

In the job room on the fourth floor there are ten motor-driven job presses. The composing room occupies the fifth floor, where a motor-driven saw trimmer is installed.



One of the Motor-Driven Presses, The Willett Press

An electric elevator communicates with all floors, completing the electrical equipment.

The entire absence of overhead belting and shafting and the general cleanliness is a tribute alike to the proprietors and to the manifold advantages of electric drive and illumination.

Motor-Driven Saw Trimmer

Steam Power the Cause of Crime

THE New York *Sun* recently contained a cable dispatch from Milan on this subject as follows:

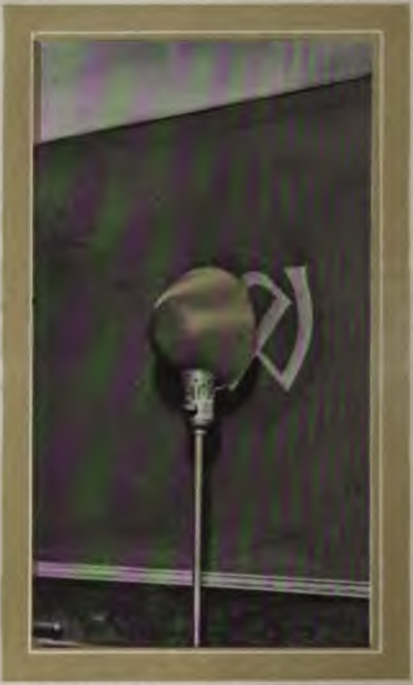
Prof Enrico Ferri, Lombroso's most illustrious disciple in criminal anthropology, in a lecture here to-day attributed the alarming growth of child crime in Italy to steam.

"Discussing modern industrialism in relation to youthful crime, he expressed his conviction that the breaking up of family life, degeneracy of the male physique, the engulfment of women and children in "white slavery" and other evils were traceable to the use of steam power.

"This appalling state of things, he said, was destined to disappear with the coming reign of electricity, which would be universal when, as science foresaw, man had discovered how to convert the heat of the sun by direct means into electrical energy.

"He said that already in parts of the United States and Belgium sewing machine work in factories had been abolished, and women were able to work shorter hours in their own homes with machines driven by electricity.

"Within a few years progressive governments would be able to shorten the working time of those employed in industrial occupations and, what was still more imperative from the criminological standpoint, to abolish night work."



How the Initial Letters are Illuminated

Front of Willett Building at Night, Showing Illuminated Initial Letters in Windows

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An electric ventilating set in the office insures pure air and hygienic surroundings.

Rapid Growth of Building in The Bronx

BUILDING operations in The Bronx, especially the Hunt's Point Section, are exceedingly active. A large number of elevator apartments using Edison Service have been erected, and are now in the course of construction.

Learning the Linotype in the Empire Linotype School, 419 First Avenue, New York

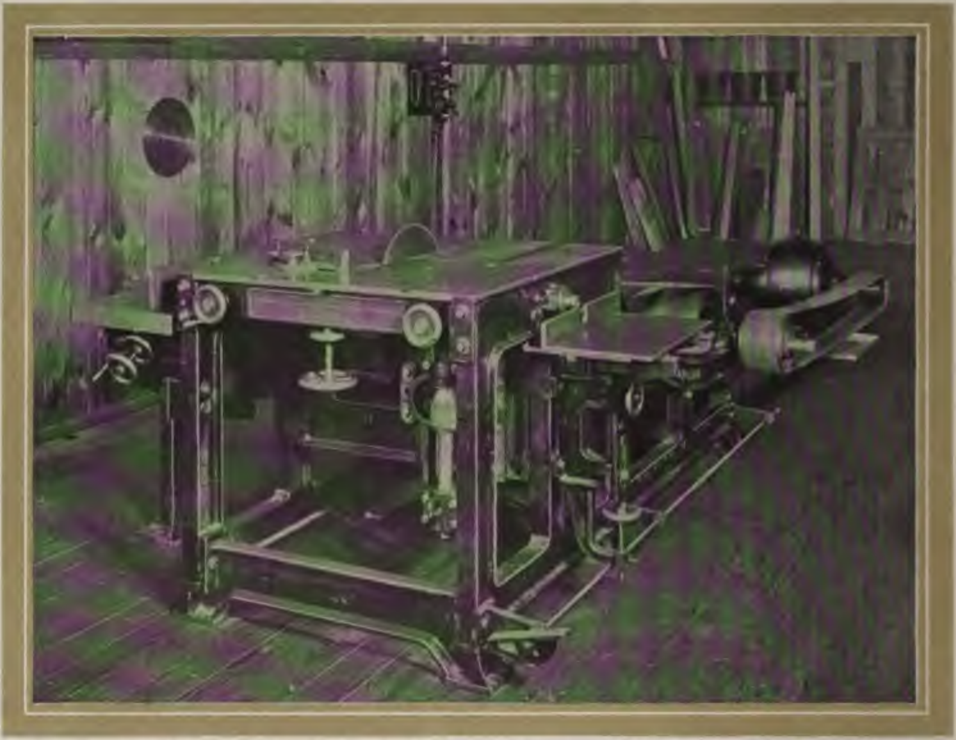
The Henry Morgenthau Company has just completed a six-story apartment building at 163d Street, Simpson Street and Southern Boulevard. This is one of the largest elevator apartment houses ever erected in The Bronx, occupying half a square block, and containing ninety-two apartments and twelve stores, which are equipped throughout with electric fixtures exclusively.

There are two passenger elevators, one freight elevator, two ash lifts, an electric pump, and a vacuum cleaning system.

The Henry Morgenthau Company are now filing plans for the construction of other elevator apartments in this territory, all of which will use Edison Service.

The American Real Estate Company has also put up elevator apartment houses in this section, and other buildings using Edison Service. This Company is now completing a building on the corner of Southern Boulevard and Westchester Avenue in which an elevator is to be installed as well as an electric pump and vacuum cleaner apparatus. Each apartment is wired for electric service.

The Zipke Construction Company have about finished a building at 163d and Tiffany Streets, which will be equipped with an elevator, electric pumps, and vacuum cleaner service. In this vicinity there are several high class elevator apartment houses now under way or about to be commenced. At Intervale Avenue and 163d Street the Lavelle-Cecil Building Company will erect a six-story elevator house. On the north side of 163d Street, two blocks east of Tiffany Street similar operations will be started by Mr. Walter Isaacs, builder, while at Fox and 163d Streets the Emanuel Construction Company will erect a building of the same type. The Brook Construction Company is building two elevator apartment houses on Southern Boulevard, south of Hunt's Point Avenue.


Woodworking Machine Driven by an Electric Motor in Factory of Mr A P Abbott, 133 Reade Street. This machine combines in one mechanism, a planer, joiner, cross cut and rip saw, shaping, and routing machine

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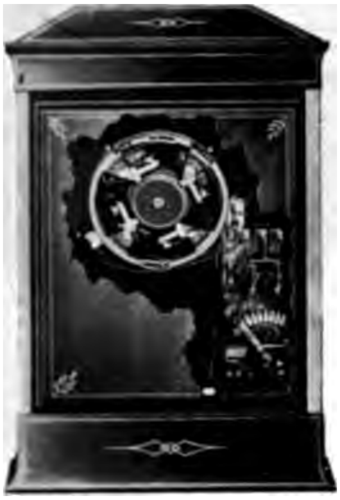
Use Edison Service.

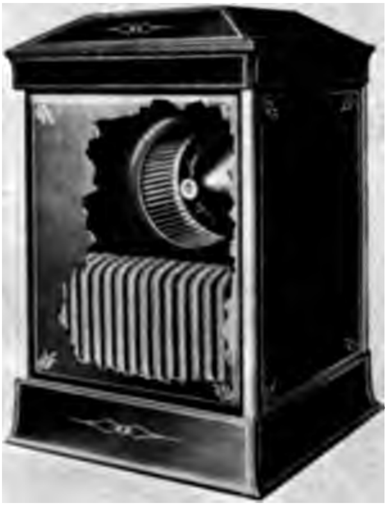


Garner No 2. Mechanical Ventilator. Interior view showing special direct-connected motor and speed controller

The Improved Garner Ventilating Machine

A DECIDED improvement has been made in the Garner Ventilating Machines by the use of a new direct-connected motor designed especially for the machine. The motor has a slow speed and is very substantially built, so that it is practically noiseless. The whole front of the machine is a door which, when opened, allows easy access to the motor, oil cup and speed controller. Space is economized by having the frame of the motor fit into the sirocco fan wheel, as shown in the rear interior view.

The improved machine has a greatly increased capacity and is able to deliver over 100,000 cubic feet of fresh air directly into the room. The air is brought into the machine at the bottom or through an opening cut into the iron casting which forms the base. The air duct is built from the machine to the best place to secure the outside fresh air. This may be through a panel at the top or bottom of a window, or through an opening made in the wall or floor. The air on entering the machine passes over the pressed steel heating coils, which are connected with the steam heating plant of the building. By this means, the fresh air may be warmed in the cold weather when it is impossible to ventilate properly with cold air. Just before leaving the machine, the fresh air passes through a very fine wire cloth screen, which completely removes all dust and dirt. This screen may be easily taken out and cleaned. The annoyance and discomfort on account of the dirt coming through open windows in the summer is entirely overcome, as



View Showing Sirocco Fan and Pressed Steel Radiator

Yale Students at the Waterside Station of The New York Edison Company

the Garner Ventilating Machine will furnish enough fresh air without opening the windows at all.

The fresh air enters the room from the top of the machine in an upward current, thus avoiding all draughts.

Each machine is self-contained and may be easily moved if necessary. The finish is quite attractive, the exterior being beautifully japanned in a rich maroon color.

The Garner Ventilating Company are the manufacturers, H B Shontz, manager, 140 Liberty St, New York.

Electric Hoist Used in Subway Construction, 116th Street and Lenox Avenue

The Cost of Living and the Automobile

SOMEONE asked the other day how the high prices of food and other things that enter into living expenses were affecting the automobile business. Not at all unfavorably, said the manager of a large automobile factory. In fact, there are certain aspects of the problem that are distinctly to the advantage of the automobile, and especially of the electric automobile. It costs more to live this year than it did last year, and a good deal more than it cost five or ten years ago. That applies, of course, to animals as well as to men. It costs more to keep a horse than it did last year, and a good deal more than it did five or ten years ago. Here, for instance, are the feed bills of a horse kept in regular service for the last two years by a well known physician:

COST OF KEEPING A HORSE

1908	
JANUARY	
12 bu oats	$7.92
355 lb hay	4.44
50 lb corn	.83
FEBRUARY	
534 lb hay	6.67
6 bu oats	3.90
25 lb corn	.45
MARCH	
590 lb hay	7.38
6 bu oats	3.90
25 lb corn	.40
APRIL	
1 bale straw	2.06
6 bu oats	4.02
50 lb corn	.83
MAY	
6 bu oats	4.02
352 lb hay	3.87
JUNE	
757 lb hay	8.33
12 bu oats	8.04
50 lb corn	.85
JULY	
6 bu oats	4.00
AUGUST	
770 lb hay	7.70
3 bu oats	2.16
SEPTEMBER	
3 bu oats	2.01
50 lb corn	.93
OCTOBER	
6 bu oats	3.90
572 lb hay	5.72
NOVEMBER	
6 bu oats	3.70
6 bag corn	1.85
50 lb bran	.85
1 bale straw	2.05
DECEMBER	
12 bu oats	7.20
1086 lb hay	10.86
50 lb corn	.90
	$117.82
Blacksmith's bills	29.30
Driver's wages	300.00
Driver's board	182.00
Total expenses were	$629.12

1909	
JANUARY	
6 bu oats	$3.72
FEBRUARY	
6 bu oats	3.60
50 lb corn	85
410 lb hay	4.10
MARCH	
6 bu oats	3.60
50 lb corn	85
APRIL	
12 bu oats	7.74
1135 lb hay	11.35
1 bag corn	1.65
MAY	
6 bu oats	3.90
JUNE	
1 bale straw	3.54
6 bu oats	4.02
100 lb bran	1.75
1135 lb hay	12.49
JULY	
6 bu oats	4.20
1 bag corn	1.80
AUGUST	
6 bu oats	3.90
SEPTEMBER	
1542 lb hay	17.23
6 bu oats	3.72
OCTOBER	
3 bu oats	1.59
12 bu oats	6.36
NOVEMBER	
9 bu oats	4.77
1040 lb hay	11.44
DECEMBER	
1 bale straw	1.77
6 bu oats	3.42
5 bales hay	5.98
	$129.34
Blacksmith's bills	32.60
Driver's wages	360.00
Driver's board	208.00
Total expenses were	$729.94

An increase of 10 per cent in the feed bills of a single horse for a single year may not seem startling to the average mind; but when you add to that a similar increase in the blacksmith bills and a still greater increase in the wages and board of a man, and keep up that pace for a series of years the difference is quite significant.

It will be seen that the cost of keeping a single horse in 1909 was $100 greater than in the year 1908.

One of The New York Edison Company's Electric Trucks with Hoist Attached Erecting an Arc Lamp Pole

Now compare this cost with that of using an interior-driven electric in the same part of the country, dispensing with the services of a man. These figures are taken from the experience of a large number of owners of Waverley Electrics of various dates and types and represent average costs for extended periods.

Cost of current per month..........	$4.11
Cost of battery renewal per month..	4.85
Cost of tire renewal per month.....	4.40
Sundry repairs per month.........	2.02
Total average cost of an electric per month....................	$15.38
For a year	184.26

A saving in favor of the electric of $545.68 in a single year.

This saving is due to the very reasonable economy involved in dispensing with the services of a man—an economy that becomes entirely practicable and convenient with the use of an electric. If, however, the owner prefers to keep his car at a public garage and avoid the slight trouble involved in washing and looking after his own car, the additional expense would be less than $20.00 per month and he would still save upwards of $300 per year on the cost of keeping a horse and a man.

In the light of these figures the expense of maintaining an automobile, either gasoline or electric, tends constantly to reduce, while the poor old horse, with his limited usefulness, becomes increasingly expensive.

General Vehicle Company's Commercial Wagon for Delivery Service

Condensed Instructions for the Operation of "Exide" and "Hycap-Exide" Batteries

PART I

USE only direct current (never alternating current) for charging. If only alternating is available, apparatus must be procured to change it to direct. For information on this point, apply to this Company.

The positive terminal of the battery must always be connected to the positive wire of the charging circuit. Charging in the wrong direction will ruin the battery.

Place the controller handle and vehicle switches in the positions specified for charging in the instructions furnished with the vehicle.

Do not ring the bell or turn on the lights during charge.

Open the battery compartment to obtain ventilation.

Do not bring a naked flame, (match, candle or lighted cigar,) near the battery at any time.

Commence charging at the higher normal charging rate in amperes, as stamped on the name plate of the battery, and continue at this rate until a sound of active gassing or

General Vehicle Company's Wagon Used by Lincoln Safe Deposit Company

Edison Service *in the* Bronx

Goldhill Court, 827 Union Avenue, Bronx. Edison Service is used throughout this building for lighting and power bubbling in the cells can be plainly heard by placing the ear close to the battery. (The voltage at this period of the charge will be 2.5, or a little higher, for each cell in the battery.) Then reduce the rate to the low rate stamped on the name plate and continue until the bubbling or gassing can again be clearly heard. (The time at the low rate will be between two and a half and three hours.) This is the simplest method of determining approximately full charge, and is sufficiently accurate for general operation between the periods of overcharge as follows:

Entrance to Goldhill Court

Once every two weeks give the battery an overcharge. To do this, simply continue charging after the battery has begun to gas freely at the low charging rate until four (4) successive readings of the voltmeter are the same, these readings being taken at intervals of one-half hour.

Electric Fountain in Court. Goldhill Court

At the same time that the voltmeter readings are taken, hydrometer readings of two cells in different parts of the battery should be taken.

Applications of Electric Heating...

SECTION II

HOSPITALS AND SANITARIUMS.

Cauterizing devices.
Heating pads.
Immersion coils.
Radiators.
Sterilizers.
Baking cabinets.
Electric light bath cabinets.
Kitchen outfits (complete).

HOTELS.

Curling-iron heaters.
Sealing-wax heaters.
Laundry and tailors' irons.
Radiators.
Electric light bath cabinets.
Heating pads.
Cigar lighters.
Kitchen outfits (complete).
Hot-water heaters.

JEWELERS AND OPTICIANS.

Soldering irons.
Solder pots.

LABORATORIES.

Ovens.
Hot-water urns.
Annealing furnaces.

LAUNDRIES.

Flatirons.
Water boilers.
Dryers.
Electrically heated ironers and mangles.

LIBRARIES.

Book-branding devices.
Sealing-wax pots.
Glue pots.

LITHOGRAPHERS.

Matrix drying tables.

LIVERY STABLES.

Electric forges.
Branding irons.

LUMBER DEALERS.

Branding irons.

LUNCH WAGONS AND STANDS.

Kitchen outfits (complete).

MACHINE SHOPS.

Soldering irons.
Solder pots.
Forges.
Welders.
Tool temperers.
Brazier.

MASSAGE AND MANICURE PARLORS.

Curling-iron heaters.
Hot-water urns.
Radiators.
Cauterizers.

OFFICES.

Sealing-wax heaters.
Foot warmers.
Hot-water heaters.
Radiators.
Cigar lighters.

OFFICE BUILDINGS.

Radiators.
Oil-heating apparatus.

PAPER BOX MANUFACTURERS.

Glue pots.
Sealing-wax heaters.

PHOTOGRAPHERS.

Glue pots.
Radiators.
Burnishers.
Electric dryers.

PHYSICIANS AND SURGEONS.

Cauterizing devices.
Sterilizers.
Electric light bath cabinets.
Baking cabinets.
Hot-water urns.
Heating pads.
Radiators.

PLUMBERS AND TINSMITHS.

Soldering irons.
Solder pots.
Braziers.
Pitch kettles for roofing.
Pipe-thawing apparatus.
Thawing transformers.

POULTRY FARMS.

Incubators.
Heaters.
Brooders.
Food warmers.

PUBLISHERS AND JOB PRINTERS.

Glue pots.
Matrix drying tables.
Finishing irons.
Branding irons.
Stamping and embossing presses.
Sealing-wax heaters.
Stoves for heating inks.
Heaters for drying ink on cylinder presses.
Monotype machines.

RESIDENCES.

Thermostats for regulating furnaces.
Cigar lighters.
Corn poppers.
Nursery milk warmers.
Heating pads.
Sterilizers.
Chafing dishes.
Flatirons.
Curling-iron heaters.
Foot warmers.
Radiators.
Kitchens (complete).

RESTAURANTS.

Coffee pots.
Chafing dishes.
Plate warmers.
Radiators.
Cigar lighters.
Broilers (large size).
Griddles.
Kitchen outfits (complete).

ROOFERS.

Pitch kettles.
Branding irons.

SALOONS.

Water heaters.
Plate warmers.
Coffee percolators.
Cigar lighters.
Radiators.

SCHOOLS AND COLLEGES.

Radiators.
Pyrograph needles.
Laboratory testing apparatus.

SHIRT AND OVERALL FACTORIES.

Laundry and tailors' irons.
Mangle rolls.

STEEL MILLS AND BLAST FURNACES.

Tool tempering apparatus.
Steel furnaces.
Welding.

STREET RAILWAYS.

Car heaters.
Track welders.
Forges.
Heated brake handles.
Soldering irons.
Solder pots.

TAILORS AND DRESSMAKERS.

Laundry and tailors' irons.

TANNERIES.

Hot wire for removing wool from skins.

TELEGRAPH AND TELEPHONE COMPANIES.

Soldering irons.
Sealing-wax heaters.
Soldering pots.

TWINE AND ROPE FACTORIES.

Wax-paint warmers.
Radiators.
Flatirons.
Asphaltum heaters.

THEATRES AND CONCERT HALLS.

Curling-iron heaters.
Grease-paint warmers.
Radiators.
Water heaters.

TOBACCONISTS.

Cigar lighters.
Branding apparatus.

TURKISH BATHS.

Curling-iron heaters.
Radiators
Hot-air hair dryers.

"Pertinent Power Proverbs."

A BOOKLET issued by the Central Georgia Power Company bears the above title and contains some very pertinent statements regarding the advantages of electric motor drive, part of which we reprint herewith.

Misfortunes never come singly—when your engine breaks down your customers cancel their orders.

Do you work for power or does the power work for you? Electric power and electric motors make no trouble. The wheels will never turn with power (friction) that has gone to waste.

If cleanliness is next to godliness, why not use an electric motor?

Diligence is the mother of good fortune, and the electric motor is diligence personified.

The business that runs with electric motors shocks only its competitors.

You can tell a workman by his chips and a steam engine by its dirt. Electric motors make neither.

The power that merely turns shafting will never grind dollars for the cash-box. Use direct applied electric motors.

Using the Fraley Vibrator in the Up-to-date Barber Shop of Louis Burgumeister, No 4 Thomas Street

Always bear in mind that power wasted in needless shafting, belting and friction gathers no dividends. Electric motors overcome the trouble.

The power that's ready when you are gets your goods ready when your customers are.

PUBLIC
ASTOR, LENOX AND
TILDEN FOUNDATIONS

THE EDISON MONTHLY

JULY

1909

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES
55 Duane Street
TELEPHONE WORTH 3000

BRANCH OFFICES	*Telephone*
115 Delancey St	Orchard 1960
124 West 42d St	Bryant 5262
27 East 125th St	Harlem 4020
380 East 149th St	Melrose 3340

Emergency Night and Sunday Call—Bryant 145

Territory Served by the Various Supply Offices

First and Delancy Street District, 546 Pearl Street	All territory South of Eighth Street from the East to the North River	**Telephone No Worth 3000**
Second District 115 West 39th Street	Eighth Street to Fifty-ninth Street, both inclusive, from the East to the North River	**Telephone No Bryant 145**
Third District 173 West 107th Street	North of Fifty-ninth Street from East to North River to and including One Hundred and Thirty-sixth Street, east of St Nicholas Avenue, and to the north side of One Hundred and Thirty-fifth Street west of St Nicholas Avenue	**Telephone No Riverside 4889**
Bronx District 140th Street and Rider Ave	All territory lying within the Borough of the Bronx	**Telephone No Melrose 3330**

THE EDISON MONTHLY

AUGUST

1909

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES
55 Duane Street
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BRANCH OFFICES	*Telephone*
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THE EDISON MONTHLY

OCTOBER

1909

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

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GENERAL OFFICES
55 Duane Street
TELEPHONE WORTH 3000

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THE EDISON MONTHLY

NOVEMBER

1909

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55 DUANE STREET NEW YORK

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THE EDISON MONTHLY

DECEMBER

1909

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES
55 Duane Street
TELEPHONE WORTH 3000

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THE EDISON MONTHLY

FEBRUARY

1910

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES
55 Duane Street
Telephone Worth 3000

BRANCH OFFICES	*TELEPHONE*
115 Delancey St	Orchard 1960
124 West 42d St	Bryant 5262
839 Third Avenue	Plaza 6543
27 East 125th St	Harlem 4020
360 East 149th St	Melrose 3340

EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

Territory Served by the Various Supply Offices

FIRST AND DELANCEY STREET DISTRICT, 546 PEARL STREET
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TELEPHONE No WORTH 3000

SECOND DISTRICT
115 WEST 39th STREET
Eighth Street to Fifty-ninth Street, both inclusive, from the East to the North River
TELEPHONE No BRYANT 145

THIRD DISTRICT
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TELEPHONE No RIVERSIDE 4889

BRONX DISTRICT
140th STREET AND RIDER AVE
All territory lying within the Borough of the Bronx
TELEPHONE No MELROSE 3330

"At Your Service"

THE EDISON MONTHLY

MARCH

1910

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

GENERAL OFFICES

55 Duane Street

Telephone Worth 3000

BRANCH OFFICES	TELEPHONE
115 Delancey St	Orchard 1960
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140th STREET AND RIDER AVE
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"At Your Service"

910

THE EDISON MONTHLY

APRIL

1910

THE NEW YORK EDISON COMPANY
55 DUANE STREET NEW YORK

The New York Edison Company

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55 Duane Street
Telephone Worth 3000

BRANCH OFFICES	*TELEPHONE*
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EMERGENCY NIGHT AND SUNDAY CALL—BRYANT 145

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"At Your Service"

MAY 10

THE EDISON MONTHLY

MAY

1910

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55 DUANE STREET NEW YORK

The New York Edison Company

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55 Duane Street

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BRONX DISTRICT
140th STREET AND RIDER AVE
All territory lying within the Borough of the Bronx
TELEPHONE No MELROSE 3330

"At Your Service"

MANUFACTURERS AND AGENTS—(Continued)

Shapiro & Aronson—67 Centre St
Simes Co The—20 Rose St
Tungstolier Co The—27 E 21st St
Western Electric Co—463 West St

Globes and Reflectors

Frink I P—551 Pearl St
Holophane Co—227 Fulton St
Phœnix Glass Co—15 Murray St
Weeks Nelson—217 William St

Motors—General Uses

Bell Electric Motor Co—133 Liberty St
Caldwell & Osterhoudt—232 Fulton St
Century Electric Co—30 Church St
Crocker-Wheeler Co—30 Church St
Diehl Manufacturing Co—90 Prince St
Eck Dynamo & Motor Co—19 Murray St
Emerson Elec Mfg Co The—50 Church St
Ft Wayne Electric Works—30 Church St
Garwood Electric Co—149 Broadway
General Electric Co—30 Church St
Haire Arthur W—10 E 42d St
Holtzer Cabot Electric Co—83 Warren St
Kenny Elec Mfg Co—90 West St
MacGovern Archer & Co—114 Liberty St
Mechanical Appliance Co—30 Church St
Rival Sewing Mach & Elec Motor Co—547 W Bway
Rossiter MacGovern & Co—90 West St
Roth Bro & Co—136 Liberty St
Sprague Electric Co—527 West 34th St
The Fidelity Elec Co—711 Broadway
Western Electric Co—463 West St
Westinghouse Elec and Mfg Co—165 B'way

Motor Inspection, Maintenance, and Repairs

Bell Electric Motor Co—30 Church St
Chester Co William S—43 East 8th St
Elec Elev & Mach Maint Co—1 Beekman St
Graham Bros Co—662 Hudson St
Lord Electric Co—213 West 40th Street
Maintenance Co The—54 Franklin St
Naylor & Newton—243 Canal St
Oneida Electric Co—300 West Broadway
Geo Weiderman Elec Co—35 Rose St

Pumps

D'Olier Engineering Co—114 Liberty St
Goulds Mfg Co—16 Murray St
Holland Machine Co—51 Cliff St
Platt Iron Works The—100 Broadway
Quimby William E Inc—3 West 29th St
Rumsey Pump & Machine Co—75 Warren St
Watson Stillman Co—50 Church St

Refrigeration

De La Vergne Machine Co—Foot E 138th St
York Manufacturing Co—York Pa
Westerberg & Williams—90 West St

Switch and Distributing Boards

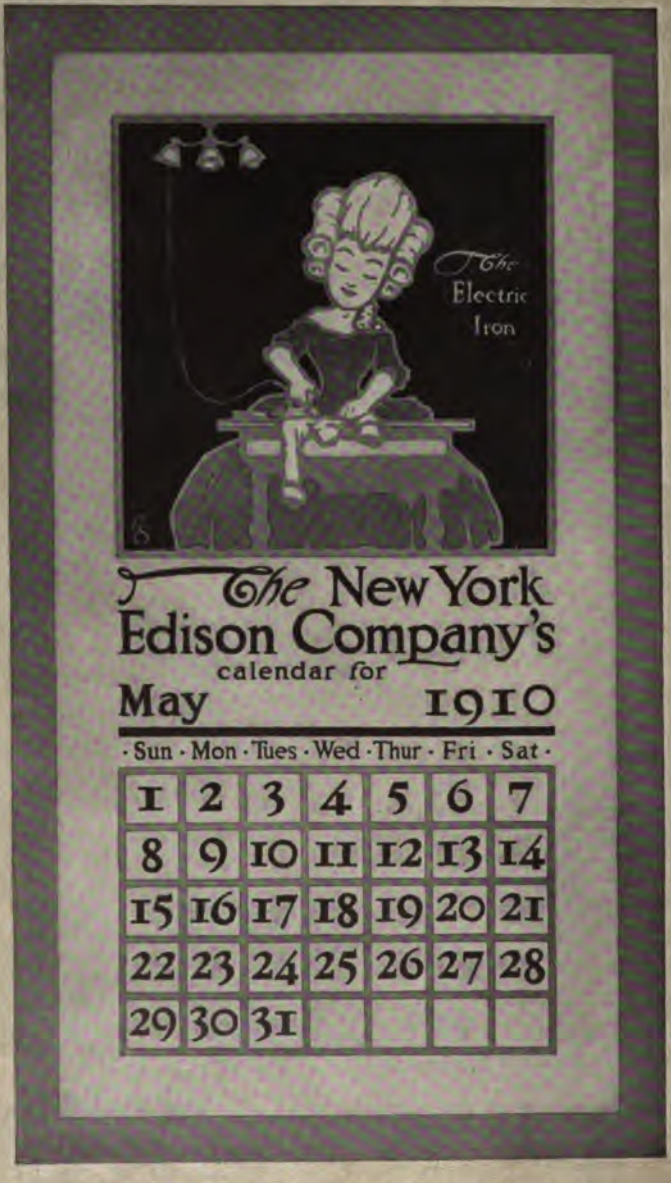
Anderson Mfg Co A & J M—135 Broadway
Automatic Switch Co—131 Liberty St
Crouse Hinds Co—25 Dey St
Krantz Mfg Co—160 7th St Brooklyn
Metr Switchboard Co—536-540 W 22d St
Metropolitan Engineering Co—1240-50 Atlantic Ave Brooklyn
National Switchboard Co—534 W 58th St
Pringle Elec Mfg Co The—39-41 Cort St
Rall Frederick—19 Park Pl
Tibbals & Co E C—1201 Atlantic Ave Brooklyn
Trumbull Electric Mfg Co—136 Liberty St
Walker Electric Co—39 Cortlandt St
Wirt Electric Co—39 Cortlandt St

Vacuum Cleaners

Duntly Manufacturing Co—204 5th Ave
Electric Cleaner Co—477 Fifth Ave
Empire Vacuum Co—112 West 30th St
Everson Vac Cleaner Co—43 W 34th St
Hoover Electric Suction Sweeper Co—91 Wall St
Livingston & Co J—113 E 22d St
Modern Devices Inc—432 Fifth Ave
Positive Vac Cleaner Co—860 Marbridge Bdg
Pressinger Co W P—1 West 34th St
Santo The Sales Co—341 Fifth Ave
Spencer Turbine Cleaner Co—1 Madison Ave
The Cleanator—39 Cortlandt St
The Vortex Vacuum Cleaner—Boston Mass
The Vacuum Cleaner Co—11 E 24th St
Thurman Vacuum Cleaner Co—315 Fifth Ave
Vacuum Engr Co—114 Liberty St
Vacuum Process Renting Co—2650 Bway

SUPPLY DEALERS

Brown Wm S—3 West 29th St
Bunnell & Co J H—20 Park Place
Burnet Co The—69 South St
Chapin Chas E—201 Fulton St
Fletcher Stanley Co—32-34 Frankfort St
Fullerton Case Co—109-115 West 26th St
Latham & Co E B—B'way & Murray St
Lowe Electric Co—54 Vesey St
Manhattan Elec Supply Co—17 Park Pl
N Y Elec Fountain Co—45 Liberty St
Ostrander W R—22 Dey St
Roberts & Bros Geo I—471 4th Ave
Royal-Eastern Elec Sup Co—114 W 27th St
Sibley & Pitman—26 Warren St
Stanley & Patterson—23 Murray St—27 Warren St—329 Fourth Ave
Storage Battery Supply Co—239 East 27th St
Thomas & Betts Co—299 Broadway
Universal Cutter Co—285 Mercer St
Wappler Elec Cont Co—177 E 87th St
Western Electric Co—463 West St
Wood C D Jr—136 Liberty St



The New York Edison Company's
calendar for
May 1910

Sun	Mon	Tues	Wed	Thur	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Calendar of The New York Edison Company
Exact Size

This Calendar from February 1910 to January 1911 inclusive will be sent to MONTHLY readers upon request

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